

# Designing for DIVERSITY

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# Our plan together

**Session 1 – Nov 30:** What in Inclusion? How do we do it?

**Session 2 – Nov 30:** Getting to know learners from a strength-based perspective

**Session 3 – Feb 20:** Needs Based Design

**Session 4 – Mar 1:** Curriculum Design Strategies part 1

**Session 5 – May 2:** Curriculum Design Strategies part 2

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# Thinking Back Looking Ahead

## Last Session

# HOW DO WE DESIGN AN ADJUSTABLE PLANE?

- Who are the **students**? What is the range of the **variability**?
- What is the **grade level curriculum** that students need to access?
- How is the grade level curriculum **responsive** to the range of student variability?
- How do we help **students to make the adjustments** they need to access the grade level curriculum?



# Strategies to Get to Know Learners

Help us get to know: \_\_\_\_\_ Date: \_\_\_\_\_

Person connected to _____?	Identities	Interests	Strengths	Stretches	Needs
Who are you and how do you know _____?	What words would you use to describe _____? What groups is _____ connected to in their community?	What is _____ interested in? What do they like to do on their own? With their friends? Family? Community?	What is _____ good at? What can they teach others?	What is hard for _____? What do you think _____ wants to get better at?	What does _____ need support with? What is important for people to know about _____?
Person 1:					
Person 2:					
Person 3:					
Person 4:					

Moore, 2023

Google Form:

<https://forms.gle/6CaTcpW3sSQnQnCp7>

**Identifies**

Choose at least 3 questions to respond to from this section.

How do you identify?  
Your answer \_\_\_\_\_

What are some words that describe you?  
Your answer \_\_\_\_\_

Complete the statement: I am ...  
Your answer \_\_\_\_\_

What communities are you and your family a part of?  
Your answer \_\_\_\_\_

What are your pro nouns?  
Your answer \_\_\_\_\_

**Interests**

Choose at least 3 questions to respond to from this section.

What brings you joy?  
Your answer \_\_\_\_\_

What are some of your favourite things/activities?  
Your answer \_\_\_\_\_

What are some things that you like to do with your family? Your friends?  
Your answer \_\_\_\_\_

What do you wish you could spend more time doing or learning about?  
Your answer \_\_\_\_\_

What would you do if you had a day off?  
Your answer \_\_\_\_\_

**Strengths**

Choose at least 3 questions to respond to from this section.

What feels easy to you?  
Your answer \_\_\_\_\_

What do you know a lot about?  
Your answer \_\_\_\_\_

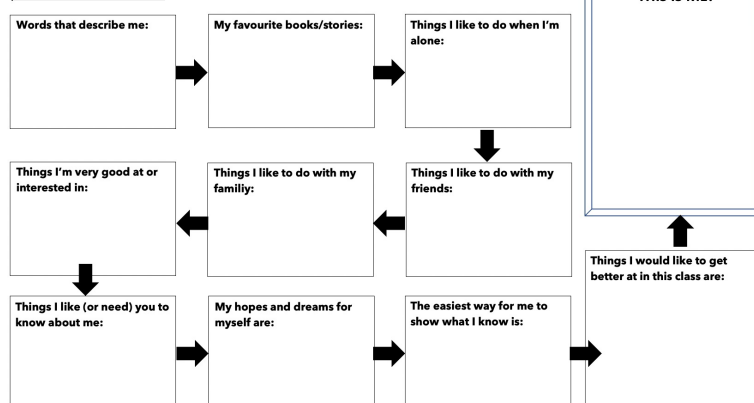
What unique perspective do you bring to conversations?  
Your answer \_\_\_\_\_

What are you really good at?  
Your answer \_\_\_\_\_

What could you teach to someone else?  
Your answer \_\_\_\_\_

Class Review:		School Team:		Date:	
<b>Class Dimensions</b>					
<b>Class Identities</b> Student Perspectives:		<b>Class Interests</b> Student Perspectives:		<b>Classroom Strengths</b> Student Perspectives:	
Team Perspectives:		Team Perspectives:		Team Perspectives:	
<b>Class Needs</b>					
Need:		Need:		Need:	
<b>Team Goals</b>					
Some big questions and/or goals that we have for this class:					
<b>Team Reflections &amp; Decisions</b>					
What works well for this class?			What else can we do to reduce barriers for this class?		

## Who am I? Profile



<p><b>Who am I? (Identities)</b></p> <p>How do you identify? What are some words that describe you? Complete the statement: I am _____</p> <p>What communities are you and your family a part of? What are your pro nouns? What languages do you speak? What cultures, races or nations do you identify with? Are there any disabilities that you identify with?</p>	<p><b>What do I love? (Interests)</b></p> <p>What brings you joy? What are some of your favourite things/ activities? What are some things that you do with your family and friends? What do you wish you could spend more time doing? What do you want to learn how to do? What would you do if you had a full day off? What do you like to learn/ read about? What kinds of shows/ movies/ books do you like?</p>	<p><b>What am I good at? (Strengths)</b></p> <p>What feels easy to you? What do you know a lot about? What perspective do you bring to conversations? What are you really good at? <b>How can I help others? (Strengths)</b> What could you teach to someone else? Why is your family/ class/group so lucky to have you? How do you help out at home? In other activities? What do you do that brings other people joy?</p>	<p><b>How do I want to grow? (Stretches)</b></p> <p>What is a goal that you have for yourself? What do you want to get better at? What is something you want to learn more about? What do you wish you could do more of? What is an area that you need some practice in? What could you work on now, that will help you in the future? What do you need support for at school? What do you wish you could do more of without help?</p>	<p><b>What makes it hard for me to grow? (Needs)</b></p> <p>What makes it hard for you to learn? What helps you learn best? What makes it hard for you to pay attention/ focus? Do you prefer to work alone or in a group? What makes it hard to get to school/ go to class? What do you wish was different about school? What materials/tools do you need in a classroom? What is important for your teacher to know about you?</p>
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# Strategies to Plan for the Needs of Students

## Classroom Support Planning: Collaborative Needs Based Reflection

Target Classroom: \_\_\_\_\_ Classroom Teacher(s): \_\_\_\_\_ Support Teachers/Staff: \_\_\_\_\_ Date: \_\_\_\_\_

1. Look at the following areas of need as a team
2. Record needs for students who have IEPs (Individual education plan) and/or LSPs (learning support plan)
3. You can refer to individual assessments and recommendations as well as specialists to determine needs if useful
4. Record needs for students in class who do not have IEP or LSP
5. Look for clusters of need and reflect on community impact
6. Determine priority classroom needs to develop Classroom Support Plan

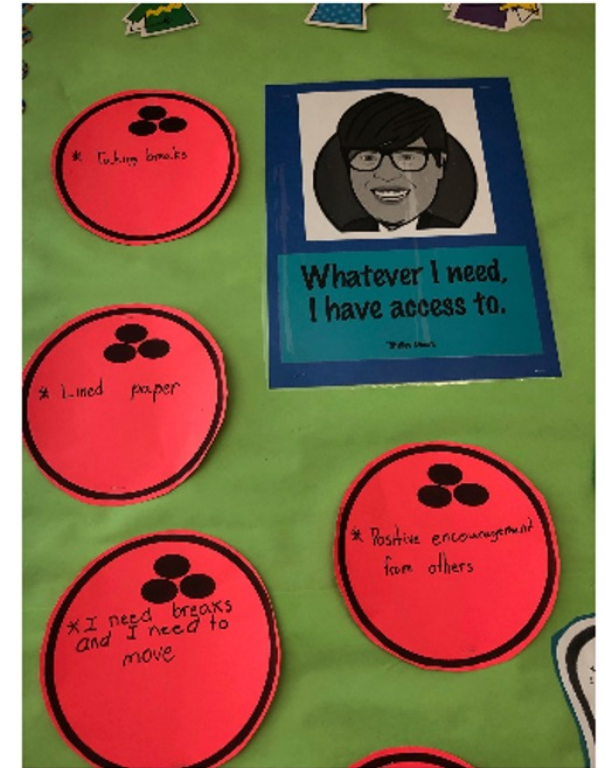
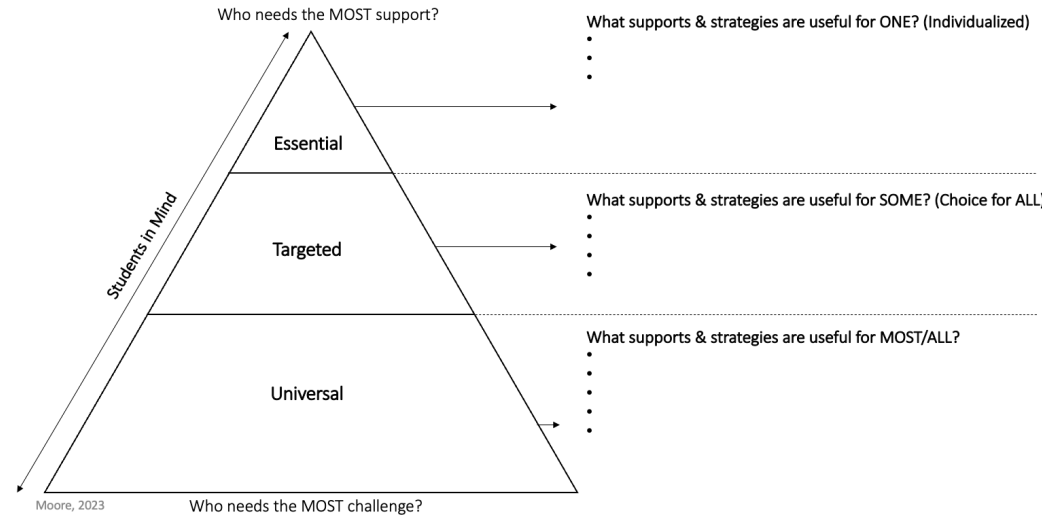
Areas of Need	Students who have this need (underline students who have IEP/LSPs)	This need impacts the community and/or there is a cluster of students who have this need	This need can be managed over time and/or not critical	This is an individual need area and/or community does not need support in this area
Addiction				
Attendance/ Lateness				
Attention				
Anxiety/ Depression				
Bullying				
Communication (receptive)				
Communication (expressive)				
Eating/Food/Allergies				
Engagement/Motivation				
Executive Functioning				
Family/Community/Identity				
Frustration/ Anger				
Grief/ Trauma				
Gross/Fine Motor Skills				
Intellectual Ability (access)				

Collaborative Needs Based Reflection

Dr. Shelley Moore, 2023

Need:

Students in Mind:





**What are you trying?**

**What are you learning?**

**What are you noticing about your thinking and practice?**

**What questions are coming up?**

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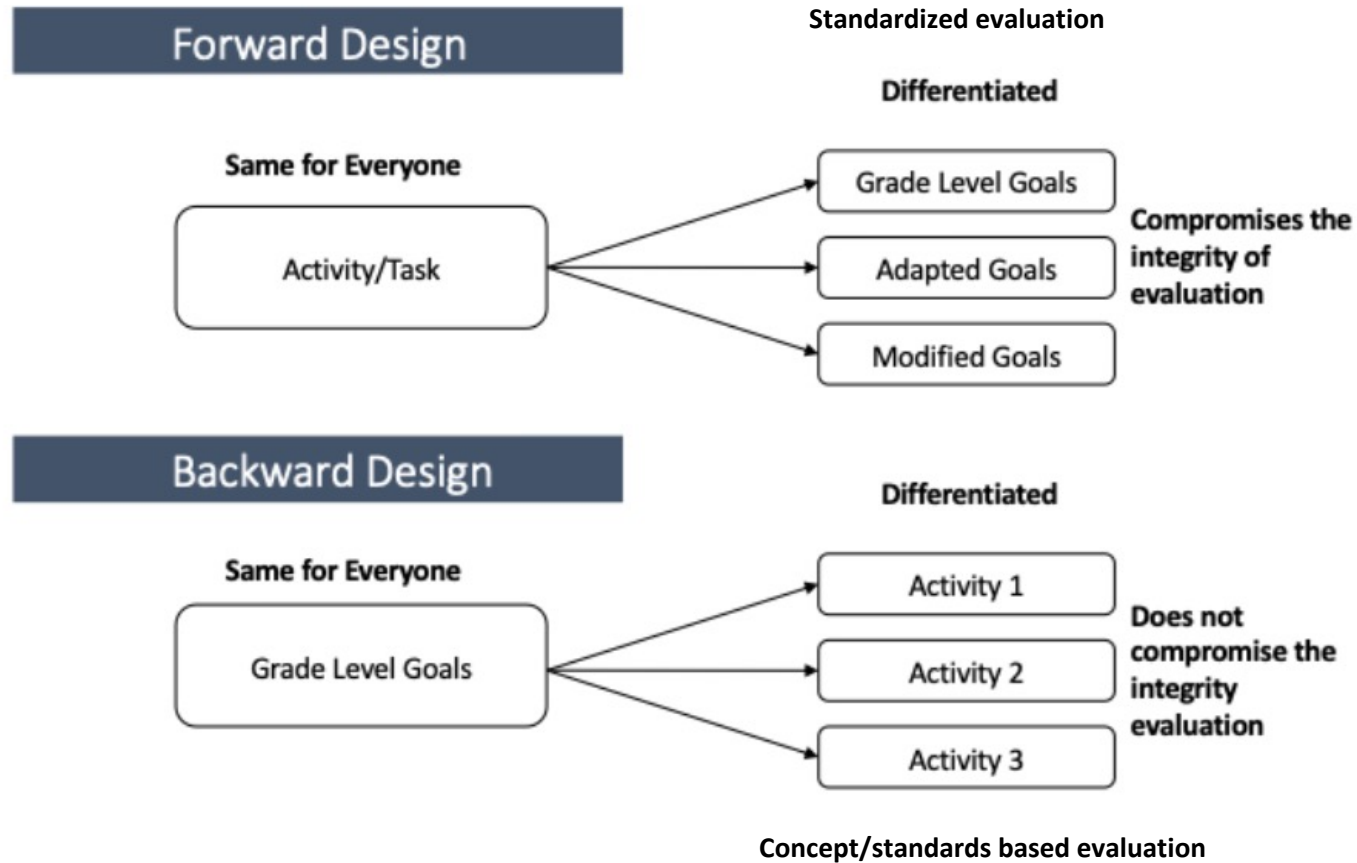
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# UBD: Determining the Learning Standard

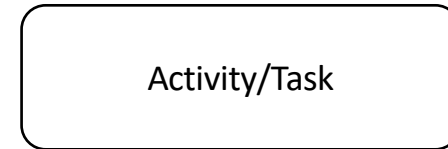
Adapted from McTigue, 2010



# UBD: Determining the Learning Standard

## Forward Design

Same for Everyone



Standardized

Differentiated

Grade Level Goals

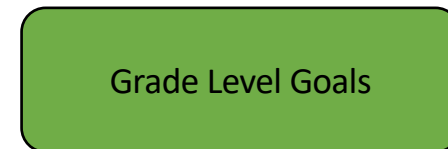
Adapted Goals

Modified Goals

Compromises the integrity of evaluation

## Backward Design

Same for Everyone



Differentiated

Activity 1

Activity 2

Activity 3

Does not compromise the integrity of evaluation

Standards Based

# Backwards Design

What do we need to **UNDERSTAND**?

Big Ideas

What do we need to **KNOW**?

Knowledge

What do we need to **DO**?

Skills

# Backwards Design Using Arizona Math Curriculum

<b>Grade:</b>		<b>Subject Area:</b>	<b>Strand/Topic:</b>	
<b>Learning Standard:</b>			<b>Teacher Provocation Questions:</b>	<b>Student Generated Questions</b>
<b>Key Vocabulary:</b>				
<b>Learning Goals</b>	<b>Possible Access Points (accessible version of grade level)</b>	<b>Curricular Language</b>	<b>Student Friendly Language</b>	
			<b>What do students need to know? ( I know...)</b>	<b>What to students need to do? ( I can...)</b>

# Backwards Design – Arizona Curriculum

## Backwards Design

What do we need to **UNDERSTAND**?

Big Ideas

What do we need to **KNOW**?

Knowledge

What do we need to **DO**?

Skills

# Backwards Design – Arizona Curriculum

## Math

What do we need to **KNOW**?

Knowledge

What do we need to **DO**?

Skills



# Arizona Mathematics Standards— 5<sup>th</sup> Grade Standards Placemat

Grade level content emphasis indicated by: ● Major Cluster; ▲ Supporting Cluster

## 1. Develop competency in dividing and fluency in multiplying whole numbers through the application of understanding of place value and multiplication and division.

Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They are fluent with multi-digit multiplication of whole numbers. Students are able to explain patterns associated with multiplication through application of their knowledge of place value such as explaining the pattern in the number of zeros in a product. Students apply their understanding of division to begin working with decimals. They understand and can explain the placement of the decimal point when multiplying or dividing. Students apply their understanding of addition and multiplication of whole numbers (NBT) to foundational understanding of volume (MD).

## 2. Develop understanding in performing operations with decimals to hundredths and estimating by rounding.

Students apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations and make reasonable estimates (through rounding) of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (e.g., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths.

## 3. Develop understanding of multiplication of fractions and division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions).

Students apply their understanding of fractions and fraction models to efficiently and accurately add and subtract fractions with unlike denominators. Students use their understanding of fractions; make connections to their understanding of multiplication and division, to explain the “why” of multiplying and dividing fractions. (Note: Division of fractions is limited to dividing unit fractions by whole numbers and whole numbers by unit fractions.)

## Operations and Algebraic Thinking (OA)

### ▲ 5.OA.A Write and interpret numerical expressions.

- 5.OA.A.1: Use parentheses and brackets in numerical expressions, and evaluate expressions with these symbols (Order of Operations).
- 5.OA.A.2: Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them (e.g., express the calculation “add 8 and 7, then multiply by 2” as  $2 \times (8 + 7)$ . Recognize that  $3 \times (18,932 + 921)$  is three times as large as  $18,932 + 921$ , without having to calculate the indicated sum or product).

### ▲ 5.OA.B Analyze patterns and relationships.

- 5.OA.B.3: Generate two numerical patterns using two given rules (e.g., generate terms in the resulting sequences). Identify and explain the apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane (e.g., given the rule “add 3” and the starting number 0, and given the rule “add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence).
- 5.OA.B.4: Understand primes have only two factors and decompose numbers into prime factors.

## Number and Operations in Base Ten (NBT)

### ● 5.NBT.A Understand the place value system.

- 5.NBT.A.1: Apply concepts of place value, multiplication, and division to understand that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
- 5.NBT.A.2: Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.
- 5.NBT.A.3: Read, write, and compare decimals to thousandths.
  - a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.
  - b. Compare two decimals to thousandths based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the
- 5.NBT.A.4: Use place value understanding to round decimals to any place.

### ● 5.NBT.B Perform operations with multi-digit whole numbers and with decimals to hundredths.

- 5.NBT.B.5: Fluently multiply multi-digit whole numbers using a standard algorithm.
- 5.NBT.B.6: Apply and extend understanding of division to find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.
- 5.NBT.B.7: Add, subtract, multiply, and divide decimals to hundredths, connecting objects or drawings to strategies based on place value, properties of operations, and/or the relationship between operations. Relate the strategy to a written form.

## Number and Operations – Fractions (NF)

### ● 5.NF.A Use equivalent fractions to add and subtract fractions.

- 5.NF.A.1: Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators (e.g.,  $2/3 + 5/4 = 8/12 + 15/12 = 23/12$ ).
- 5.NF.A.2: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using a variety of representations, equations, and visual models to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers (e.g. recognize an incorrect result  $2/5 + 1/2 = 3/7$ , by observing that  $3/7 < 1/2$ ).

### ● 5.NF.B Use previous understandings of multiplication and division to multiply and divide fractions.

- 5.NF.B.3: Interpret a fraction as the number that results from dividing the whole number numerator by the whole number denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. For example, interpret  $3/4$  as the result of dividing 3 by 4, noting that  $3/4$  multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people, each person has a share of size  $3/4$ . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?
- 5.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number and a fraction by a fraction.
  - a. Interpret the product  $(a/b) \times q$  as a parts of a partition of  $q$  into  $b$  equal parts. For example, use a visual fraction model to show  $(2/3) \times 4 = 8/3$ , and create a story context for this equation.

- b. Interpret the product of a fraction multiplied by a fraction  $(a/b) \times (c/d)$ . Use a visual fraction model and create a story context for this equation. For example, use a visual fraction model to show  $(2/3) \times (4/5) = 8/15$ , and create a story context for this equation. In general,  $(a/b) \times (c/d) = ac/bd$ .
- c. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
- 5.NF.B.5: Interpret multiplication as scaling (resizing), by:
  - a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
  - b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number; explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence  $\frac{a}{b} = \frac{n \times a}{n \times b}$  to the effect of multiplying  $\frac{a}{b}$  by 1.
- 5.NF.B.6: Solve problems in real-world contexts involving multiplication of fractions, including mixed numbers, by using a variety of representations including equations and models.
- 5.NF.B.7: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
  - a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. Use the relationship between multiplication and division to justify conclusions.
  - b. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for  $4 \div (1/5)$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to justify conclusions (e.g.,  $4 \div (1/5) = 20$  because  $20 \times (1/5) = 4$ ).
  - c. Solve problems in real-world context involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, using a variety of representations.

## Measurement and Data (MD)

### ▲ 5.MD.A Convert like measurement units within a given measurement system.

- 5.MD.A.1: Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step, real-world problems.

### ▲ 5.MD.B Represent and interpret data.

- 5.MD.B.2: Make a line plot to display a data set of measurements in fractions of a unit ( $1/8, 1/2, 3/4$ ). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

### ● 5.MD.C Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition.

- 5.MD.C.3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
  - a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
  - b. A solid figure which can be packed without gaps or overlaps using  $n$  unit cubes is said to have a volume of  $n$  cubic units.

- 5.MD.C.4: Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
- 5.MD.C.5: Relate volume to the operations of multiplication and addition and solve mathematical problems and problems in real-world contexts involving volume.
  - a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the associative property of multiplication).
  - b. Understand and use the formulas  $V = l \times w \times h$  and  $V = B \times h$ , where in this case  $B$  is the area of the base ( $B = l \times w$ ), for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve mathematical problems and problems in real-world contexts.
  - c. Understand volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms, applying this technique to solve mathematical problems and problems in real-world contexts.

## Geometry (G)

### ▲ 5.G.A Graph points on the coordinate plane to solve mathematical problems as well as problems in real-world context.

- 5.G.A.1: Understand and describe a coordinate system as perpendicular number lines, called axes, that intersect at the origin  $(0, 0)$ . Identify a given point in the first quadrant of the coordinate plane using an ordered pair of numbers, called coordinates. Understand that the first number ( $x$ ) indicates the distance traveled on the horizontal axis, and the second number ( $y$ ) indicates the distance traveled on the vertical axis.
- 5.G.A.2: Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

### ▲ 5.G.B Classify two-dimensional figures into categories based on their properties.

- 5.G.B.3: Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
- 5.G.B.4: Classify two-dimensional figures in a hierarchy based on properties.

## Mathematical Practices

The Standards for Mathematical Practice complement the content standards so that students increasingly engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle, and high school years.

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.



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5.NF.A.2: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using a variety of representations, equations, and visual models to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers (e.g. recognize an incorrect result  $2/5 + 1/2 = 3/7$ , by observing that  $3/7 < 1/2$ ).

#### ● 5.NF.B Use previous understandings of multiplication and division to multiply and divide fractions.

5.NF.B.3: Interpret a fraction as the number that results from dividing the whole number numerator by the whole number denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. For example, interpret  $3/4$  as the result of dividing 3 by 4, noting that  $3/4$  multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people, each person has a share of size  $3/4$ . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?  
5.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number and a fraction by a fraction.  
a. Interpret the product  $(a/b) \times q$  as a parts of a partition of  $q$  into  $b$  equal parts. For example, use a visual fraction model to show  $(2/3) \times 4 = 8/3$ , and create a story context for this equation.

b. Interpret the product of a fraction multiplied by a fraction  $(a/b) \times (c/d)$ . Use a visual fraction model and create a story context for this equation. For example, use a visual fraction model to show  $(2/3) \times (4/5) = 8/15$ , and create a story context for this equation. In general,  $(a/b) \times (c/d) = ac/bd$ .  
c. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.  
5.NF.B.5: Interpret multiplication as scaling (resizing), by:  
a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.  
b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number; explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence  $\frac{a}{b} = \frac{n \times a}{n \times b}$  to the effect of multiplying  $\frac{a}{b}$  by 1.  
5.NF.B.6: Solve problems in real-world contexts involving multiplication of fractions, including mixed numbers, by using a variety of representations including equations and models.  
5.NF.B.7: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.  
a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. Use the relationship between multiplication and division to justify conclusions.  
b. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for  $4 \div (1/5)$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to justify conclusions (e.g.,  $4 \div (1/5) = 20$  because  $20 \times (1/5) = 4$ ).  
c. Solve problems in real-world context involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, using a variety of representations.

### Measurement and Data (MD)

#### ▲ 5.MD.A Convert like measurement units within a given measurement system.

5.MD.A.1: Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step, real-world problems.

#### ▲ 5.MD.B Represent and interpret data.

5.MD.B.2: Make a line plot to display a data set of measurements in fractions of a unit ( $1/8, 1/2, 3/4$ ). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

#### ● 5.MD.C Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition.

5.MD.C.3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.  
a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.  
b. A solid figure which can be packed without gaps or overlaps using  $n$  unit cubes is said to have a volume of  $n$  cubic units.

5.MD.C.4: Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

5.MD.C.5: Relate volume to the operations of multiplication and addition and solve mathematical problems and problems in real-world contexts involving volume.

- a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the associative property of multiplication).
- b. Understand and use the formulas  $V = l \times w \times h$  and  $V = B \times h$ , where in this case  $B$  is the area of the base ( $B = l \times w$ ), for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve mathematical problems and problems in real-world contexts.
- c. Understand volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms, applying this technique to solve mathematical problems and problems in real-world contexts.

### Geometry (G)

#### ▲ 5.G.A Graph points on the coordinate plane to solve mathematical problems as well as problems in real-world context.

5.G.A.1: Understand and describe a coordinate system as perpendicular number lines, called axes, that intersect at the origin  $(0, 0)$ . Identify a given point in the first quadrant of the coordinate plane using an ordered pair of numbers, called coordinates. Understand that the first number ( $x$ ) indicates the distance traveled on the horizontal axis, and the second number ( $y$ ) indicates the distance traveled on the vertical axis.  
5.G.A.2: Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

#### ▲ 5.G.B Classify two-dimensional figures into categories based on their properties.

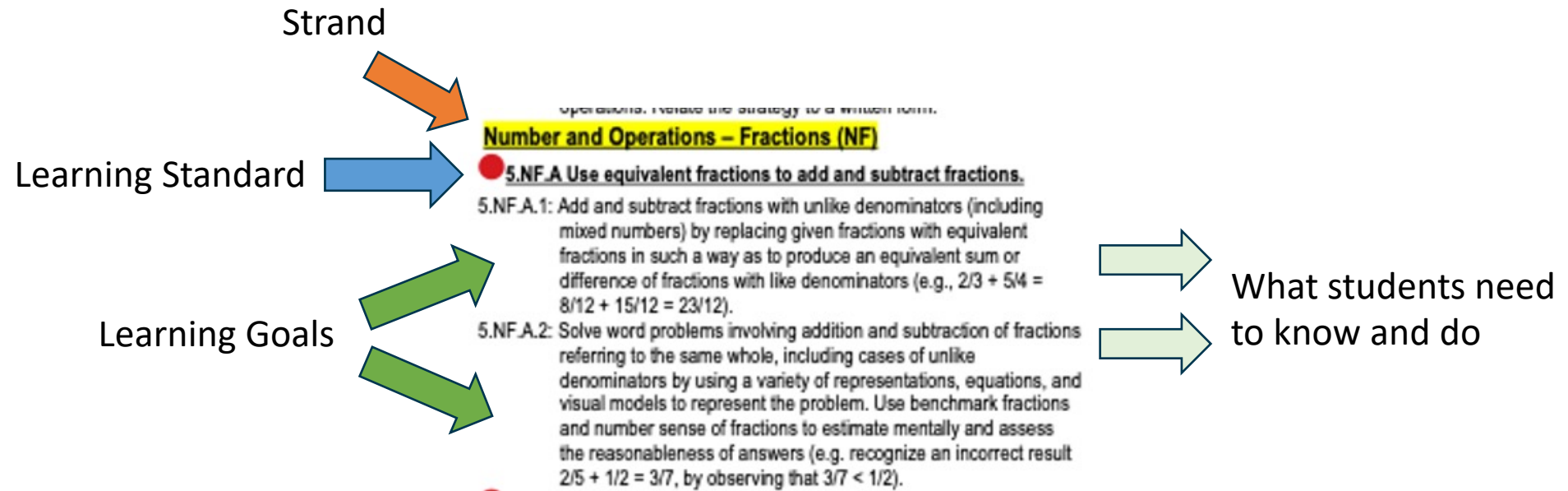
5.G.B.3: Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.  
5.G.B.4: Classify two-dimensional figures in a hierarchy based on properties.

#### Mathematical Practices

The Standards for Mathematical Practice complement the content standards so that students increasingly engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle, and high school years.

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

# Backwards Design Using Arizona Math Curriculum



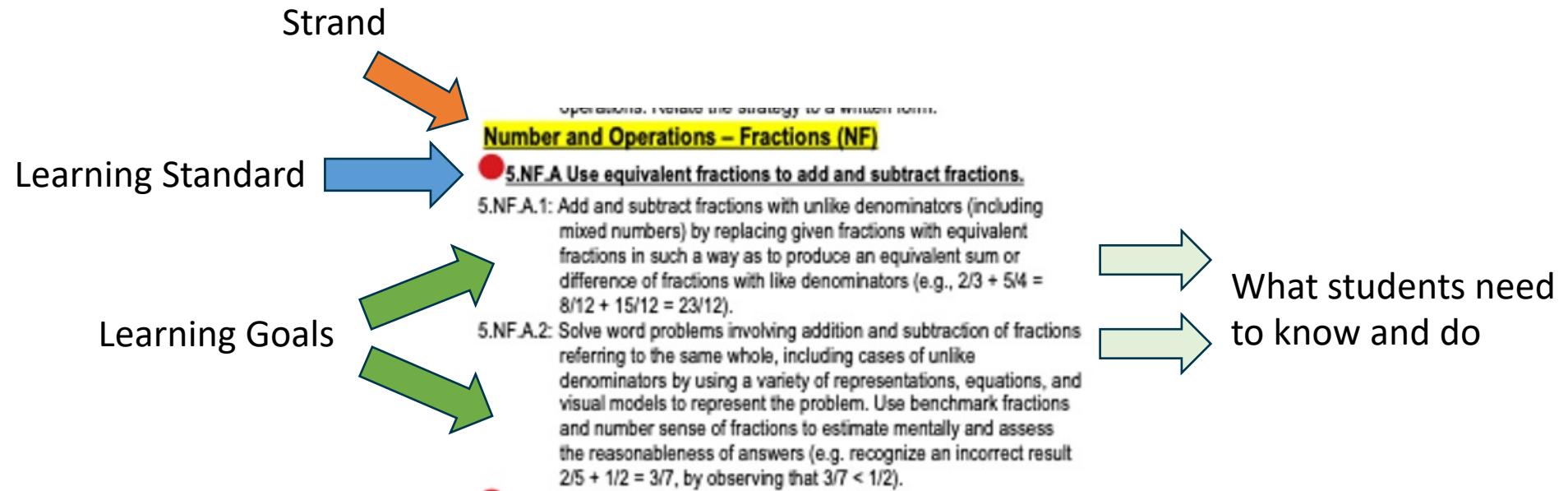
# Backwards Design Using Arizona Math Curriculum

<b>Grade:</b>	<b>Subject Area:</b>	<b>Strand/Topic:</b>		
<b>Learning Standard:</b>		<b>Teacher Provocation Questions:</b>	<b>Student Generated Questions</b>	
<b>Key Vocabulary:</b>				
Learning Goals	Possible Access Points (accessible version of grade level)	Curricular Language	Student Friendly Language	
			What do students need to know? ( I know...)	What to students need to do? ( I can...)

# Backwards Design Using Arizona Math Curriculum

<b>Grade:</b>		<b>Subject Area:</b>		<b>Strand/Topic:</b>	
<b>Learning Standard:</b>			<b>Teacher Provocation Questions:</b>		<b>Student Generated Questions</b>
<b>Key Vocabulary:</b>					
<b>Learning Goals</b>	<b>Possible Access Points</b> (accessible version of grade level)	<b>Curricular Language</b>	<b>Student Friendly Language</b>		
			<b>What do students need to know? ( I know...)</b>	<b>What to students need to do? ( I can...)</b>	

# Backwards Design Using Arizona Math Curriculum



# Backwards Design Using Arizona Math Curriculum

Grade: 5	Subject Area: Math	Strand/Topic: Number and Operations - Fractions		
Learning Standard: 5.NF.A Use equivalent fractions to add and subtract fraction		Unit Guiding Question(s):	Student Generated Questions	
Key Vocabulary:				
Learnin g Goals	Possible Access Points (accessible version of grade level)	Curricular Language	Student Friendly Language	
			What do students need to know? ( I know...)	What to students need to do? ( I can...)
5.NF.A.1		Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators		
5.NF.A.2		Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using a variety of representations, equations and visual models to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers		

# Backwards Design Using Arizona Math Curriculum

Grade: 5	Subject Area: Math	Strand/Topic: Number and Operations - Fractions		
Learning Standard: 5.NF.A Use equivalent fractions to add and subtract fraction		Unit Guiding Question(s):	Student Generated Questions:	
Key Vocabulary:				
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# Backwards Design Using Arizona Math Curriculum

Grade: 5	Subject Area: Math	Strand/Topic: Number and Operations - Fractions		
Learning Standard: 5.NF.A Use equivalent fractions to add and subtract fraction		Unit Guiding Question(s): What is an equivalent fraction? How can we use equivalent fractions to add and subtract fractions?		Student Generated Questions:
Key Vocabulary:				
Learnin g Goals	Possible Access Points (accessible version of grade level)	Curricular Language	Student Friendly Language	
			What do students need to know? ( I know...)	What to students need to do? ( I can...)
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Grade: 5	Subject Area: Math	Strand/Topic: Number and Operations - Fractions		
Learning Standard: 5.NF.A Use <b>equivalent fractions</b> to <b>add</b> and <b>subtract fraction</b>		Unit Guiding Question(s): What is an <b>equivalent fraction</b> ? How can we use <b>equivalent fractions</b> to <b>add</b> and <b>subtract fractions</b> ?	Student Generated Questions:	
Key Vocabulary:				
Learning Goals	Possible Access Points (accessible version of grade level)	Curricular Language	Student Friendly Language	
			What do students need to know? ( I know...)	What to students need to do? ( I can...)
5.NF.A.1		Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators	I know what a <b>fraction</b> is I know what a <b>denominator</b> is I know what an <b>equivalent fraction</b> is I know how to find an <b>equivalent fraction</b> I know why <b>equivalent fractions</b> can help me <b>add</b> and <b>subtract fractions</b> I know what a <b>mixed number</b> is I know how to turn a <b>mixed number</b> into a <b>fraction</b>	I can find an <b>equivalent fraction</b> I can use an <b>equivalent fraction</b> to <b>add</b> and <b>subtract fractions</b> when the <b>denominators</b> are not the same I can <b>add</b> and <b>subtract fractions</b> with there are <b>mixed numbers</b>
5.NF.A.2		Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using a variety of representations, equations and visual models to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers	I know some <b>strategies</b> to help me <b>understand word problems</b>  I know how to <b>show my thinking</b> in different ways  I know what it means to <b>estimate</b> and how <b>estimation</b> help me <b>understand</b> and <b>solve problems</b>  I know if a <b>solution</b> makes sense	I can <b>solve word problems</b> where I need to <b>add</b> and <b>subtract fractions</b> and the <b>denominators</b> are not the same  I can show how I <b>solve problems</b> in different ways ( <b>pictorial, abstract, concrete</b> )  I can <b>estimate</b> to help me make sense of <b>word problems</b>  I can think about the <b>problem</b> to see if a <b>solution</b> makes sense

# Backwards Design Using Arizona Math Curriculum

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Key Vocabulary:				
Learning Goals	Possible Access Points (accessible version of grade level)	Curricular Language	Student Friendly Language	
			What do students need to know? ( I know...)	What to students need to do? ( I can...)
5.NF.A.1	<ul style="list-style-type: none"> <li>Adding</li> <li>Subtracting</li> <li>Sharing</li> <li>Fractions with like denominators</li> <li>Benchmark fractions <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math></li> </ul>	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators	I know what a <b>fraction</b> is I know what a <b>denominator</b> is I know what an <b>equivalent fraction</b> is I know how to find an <b>equivalent fraction</b> I know why <b>equivalent fractions</b> can help me <b>add</b> and <b>subtract fractions</b> I know what a <b>mixed number</b> is I know how to turn a <b>mixed number</b> into a <b>fraction</b>	I can find an <b>equivalent fraction</b> I can use an <b>equivalent fraction</b> to <b>add</b> and <b>subtract fractions</b> when the <b>denominators</b> are not the same I can <b>add</b> and <b>subtract fractions</b> with there are <b>mixed numbers</b>
5.NF.A.2	<ul style="list-style-type: none"> <li>Visual problems (not word based)</li> <li>Word problem that use indicators above</li> </ul>	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using a variety of representations, equations and visual models to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers	I know some <b>strategies</b> to help me <b>understand word problems</b>  I know how to <b>show my thinking</b> in different ways  I know what it means to <b>estimate</b> and how <b>estimation</b> help me <b>understand</b> and <b>solve problems</b>  I know if a <b>solution</b> makes sense	I can <b>solve word problems</b> where I need to <b>add</b> and <b>subtract fractions</b> and the <b>denominators</b> are not the same  I can show how I <b>solve problems</b> in different ways ( <b>pictorial, abstract, concrete</b> )  I can <b>estimate</b> to help me make sense of <b>word problems</b>  I can think about the <b>problem</b> to see if a <b>solution</b> makes sense

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Key Vocabulary:				
Learning Goals	Possible Access Points (accessible version of grade level)	Curricular Language	Student Friendly Language	
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# Backwards Design Using Arizona Math Curriculum

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Learning Standard: 5.NF.A Use <b>equivalent fractions</b> to <b>add</b> and <b>subtract fraction</b>		Unit Guiding Question(s): What is an <b>equivalent fraction</b> ? How can we use <b>equivalent fractions</b> to <b>add</b> and <b>subtract fractions</b> ?		Student Generated Questions:	
Key Vocabulary: fraction, equivalent fraction, add, subtract, denominator, mixed number, strategies, understand, word problem, problem, solution, show my thinking, estimate, solve, pictorial, abstract, concrete					
Learning Goals	Possible Access Points (accessible version of grade level)	Curricular Language	Student Friendly Language		
			What do students need to know? ( I know...)	What to students need to do? ( I can...)	
5.NF.A.1	<ul style="list-style-type: none"> <li>Adding</li> <li>Subtracting</li> <li>Sharing</li> <li>Fractions with like denominators</li> <li>Benchmark fractions <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math></li> </ul>	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators	I know what a <b>fraction</b> is I know what a <b>denominator</b> is I know what an <b>equivalent fraction</b> is I know how to find an <b>equivalent fraction</b> I know why <b>equivalent fractions</b> can help me <b>add</b> and <b>subtract fractions</b> I know what a <b>mixed number</b> is I know how to turn a <b>mixed number</b> into a <b>fraction</b>	I can find an <b>equivalent fraction</b> I can use an <b>equivalent fraction</b> to <b>add</b> and <b>subtract fractions</b> when the <b>denominators</b> are not the same I can <b>add</b> and <b>subtract fractions</b> with there are <b>mixed numbers</b>	
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# UBD: Determining the Learning Standard

## Forward Design

Same for Everyone



Standardized

Differentiated

Grade Level Goals

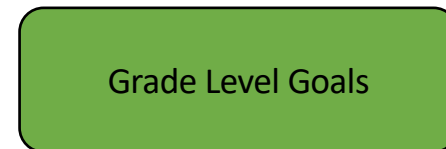
Adapted Goals

Modified Goals

Compromises the integrity of evaluation

## Backward Design

Same for Everyone



Differentiated

Activity 1

Activity 2

Activity 3

Does not compromise the integrity of evaluation

Standards Based

# Backwards Design – Arizona Curriculum

## Science

What do we need to **UNDERSTAND**?

Big Ideas

What do we need to **KNOW**?

Knowledge

What do we need to **DO**?

Skills

# Backwards Design Using Arizona Science Curriculum

<b>Grade:</b>	<b>Subject Area:</b>	<b>Strand/Topic:</b>	
<b>Learning Standard:</b>		<b>Teacher Provocation Questions:</b>	<b>Student Generated Questions</b>
<b>Key Vocabulary:</b>			
<b>Learning Goals</b>	<b>Possible Access Points</b> (accessible version of grade level)	<b>Curricular Language</b>	<b>Student Friendly Language</b>
<b>Understandings</b>			
<b>Knowledge</b>			
<b>Skills</b>			

**Arizona Science Standards**

Learning Standard



**Physical Sciences: Students develop an understanding of observable properties of matter and how changes in energy (heating or cooling) can affect matter or materials.**

Learning Goals (skills)



Physical Science Standards	Crosscutting Concepts & Background Information for Educators
<p><b>2.P1U1.1</b></p> <p><u>Plan and carry out an investigation</u> to determine that matter has mass, takes up space, and is recognized by its observable properties; use the collected evidence to <u>develop and support an explanation</u>.</p>	<p><b>Crosscutting Concepts:</b> Patterns; Cause and Effect; Scale, Proportion and Quantity; <b>Systems and System Models; Energy and Matter</b>; Structure and Function; Stability and Change<sup>4</sup></p> <p><b>Background Information:</b> All the 'stuff' encountered in everyday life, including <b>air</b>, water and different kinds of <b>solid substances</b>, is called <b>matter</b> because it has <b>mass</b>, and therefore <b>weight</b> on Earth, and takes up space. Different materials are recognizable by their <b>properties</b>, some of which are used to classify them as being in the <b>solid, liquid or gas state</b>.<sup>2(p. 29)</sup> Different kinds of matter exist (e.g., wood, metal, water), and many of them can be either solid or liquid, depending on temperature.<sup>4 (p. 100)</sup> Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible (e.g., melting and freezing), and sometimes they are not (e.g., baking a cake, burning fuel).<sup>4 (p. 110)</sup></p>
<p><b>2.P1U1.2</b></p> <p><u>Plan and carry out investigations</u> to gather evidence to support an explanation on how heating or cooling can cause a phase change in matter.</p>	
<p><b>2.P4U1.3</b></p> <p><u>Obtain, evaluate and communicate</u> information about ways heat energy can cause change in objects or materials.</p>	<p><b>Crosscutting Concepts &amp; Background Information for Educators</b></p> <p><b>Crosscutting Concepts:</b> Patterns; Cause and Effect; Scale, Proportion and Quantity; <b>Systems and System Models; Energy and Matter</b>; Structure and Function; Stability and Change<sup>4</sup></p> <p><b>Background Information:</b> There are various ways of causing an event or bringing about change in objects or materials. Heating can cause <b>change</b>, as in cooking, <b>melting solids</b> or changing water to <b>vapor</b>.<sup>2(p. 23)</sup> Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible (e.g., melting and freezing), and sometimes they are not (e.g., baking a cake, burning fuel).<sup>4(p. 110)</sup></p>

Learning Goals (skills)



## Second Grade: Focus on Systems and System Models; Energy and Matter

By the end of second grade, students understand the basic concept that energy can change the phase of matter and is necessary for life. Students begin to understand energy and matter, the formation of Earth's surface features, water cycles and energy flow, changes in the environment, patterns in the sky, and the conditions necessary for life on Earth. Student investigations focus on collecting and making sense of observational data and simple measurements using the science and engineering practices: ask questions and define problems, develop and use models, plan and carry out investigations, analyze and interpret data, use mathematics and computational thinking, construct explanations and design solutions, engage in argument from evidence, and obtain, evaluate, and communicate information. While individual lessons may include connections to any of the crosscutting concepts, the standards in second grade focus on helping students understand phenomena through systems and system models and energy and matter.

Strand	Core Ideas for Knowing Science*	Core Ideas for Using Science*	Learning Goals (understandings)
Learning Goals (knowledge)	<p><b>Physical Science</b></p> <p>P1: All matter in the Universe is made of very small particles.</p> <p>P2: Objects can affect other objects at a distance.</p> <p>P3: Changing the movement of an object requires a net force to be acting on it.</p> <p>P4: The total amount of energy in a closed system is always the same but can be transferred from one energy store to another during an event.</p> <p><b>Earth and Space Science</b></p> <p>E1: The composition of the Earth and its atmosphere and the natural and human processes occurring within them shape the Earth's surface and its climate.</p> <p>E2: The Earth and our solar system are a very small part of one of many galaxies within the Universe.</p> <p><b>Life Science</b></p> <p>L1: Organisms are organized on a cellular basis and have a finite life span.</p> <p>L2: Organisms require a supply of energy and materials for which they often depend on, or compete with, other organisms.</p> <p>L3: Genetic information is passed down from one generation of organisms to another.</p> <p>L4: The unity and diversity of organisms, living and extinct, is the result of evolution.</p>	<p>U1: Scientists explain phenomena using evidence obtained from observations and or scientific investigations. Evidence may lead to developing models and or theories to make sense of phenomena. As new evidence is discovered, models and theories can be revised.</p> <p>U2: The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.</p> <p>U3: Applications of science often have both positive and negative ethical, social, economic, and/or political implications.</p>	

\*Adapted from *Working with Big Ideas in Science Education*<sup>2</sup>

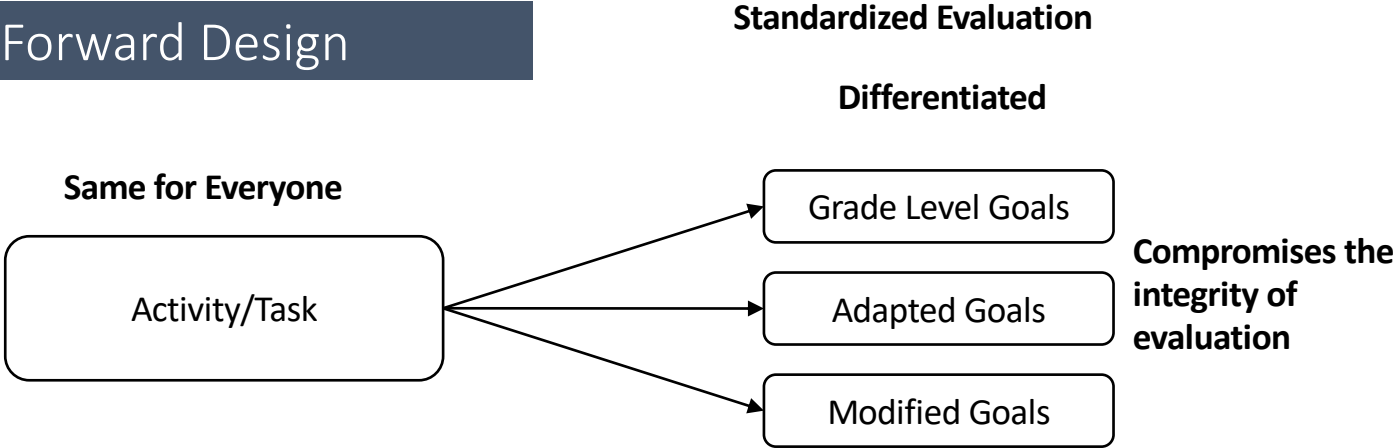
# Backwards Design Using Arizona Science Curriculum

<b>Grade:</b>	<b>Subject Area:</b>	<b>Strand/Topic:</b>	
<b>Learning Standard:</b>		<b>Teacher Provocation Questions:</b>	<b>Student Generated Questions</b>
<b>Key Vocabulary:</b>			
<b>Learning Goals</b>	<b>Possible Access Points</b> (accessible version of grade level)	<b>Curricular Language</b>	<b>Student Friendly Language</b>
<b>Understandings</b>			
<b>Knowledge</b>			
<b>Skills</b>			

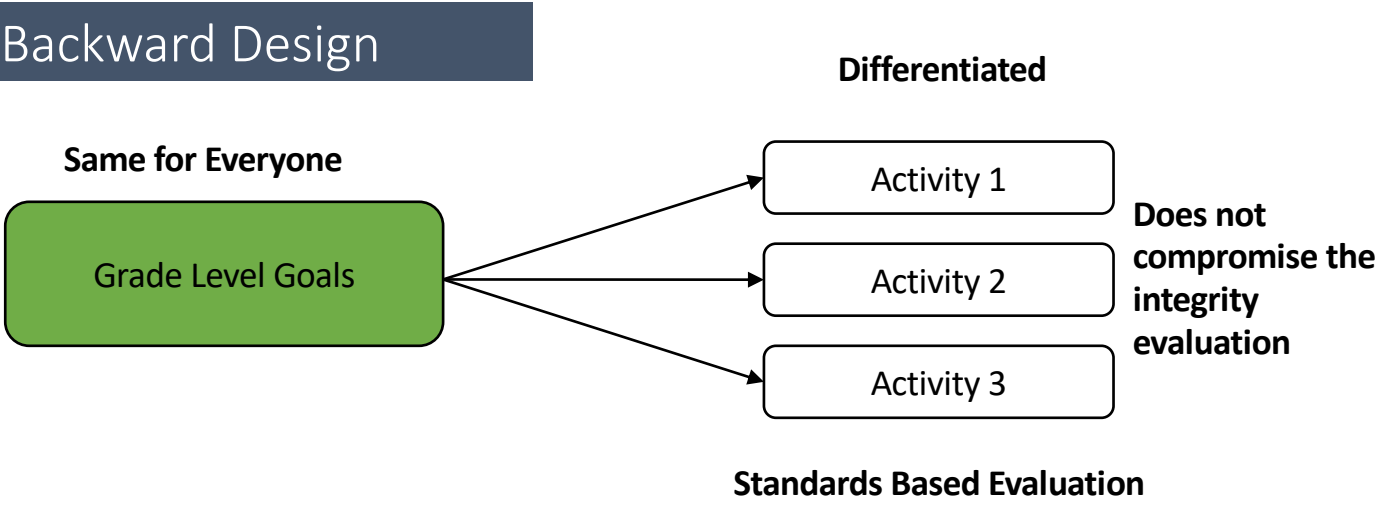
# Backwards Design Using Arizona Science Curriculum

Grade: 2		Subject Area: Science		Strand/Topic: Physical Science	
Learning Standard: Students develop an understanding of observable properties of <b>matter</b> and how <b>changes</b> in <b>energy</b> ( <b>heating</b> or <b>cooling</b> ) can <b>affect matter</b> or <b>materials</b>			Teacher Provocation Questions: What is <b>matter</b> ? How does <b>energy</b> change <b>matter</b> ?		Student Generated Questions
Key Vocabulary:					
Learning Goals	Possible Access Points (accessible version of grade level)	Curricular Language	Student Friendly Language		
Knowledge	<ul style="list-style-type: none"> <li>Solid, liquid, gas</li> <li>Fall, push, pull</li> </ul>	<ul style="list-style-type: none"> <li>P1: All matter in the Universe is made of very small particles</li> <li>P2: Objects can affect other objects at a distance.</li> <li>P3: Changing the movement of an object requires a net force to be acting on it.</li> <li>P4: The total amount of energy in a closed system is always the same but can be transferred from one energy store to another during an event.</li> </ul>	<ul style="list-style-type: none"> <li>I know that <b>matter</b> is made up of very tiny <b>particles</b> that are too small to see</li> <li>I know that <b>objects affect</b> each other, even if they are far away from each other</li> <li>I know that <b>force</b> changes how an <b>object moves</b></li> <li>I know that the amount of <b>energy</b> in a <b>closed system</b> is always the same; I know that <b>energy</b> can be <b>transferred</b></li> </ul>		
Understandings	<ul style="list-style-type: none"> <li>Using senses, experiencing, drawing what you see</li> </ul>	<ul style="list-style-type: none"> <li>U1: Scientists explain phenomena using evidence obtained from observations and or scientific investigations. Evidence may lead to developing models and or theories to make sense of phenomena. As new evidence is discovered, models and theories can be revised.</li> <li>U2: The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.</li> <li>U3: Applications of science often have both positive and negative ethical, social, economic, and/or political implications.</li> </ul>	<ul style="list-style-type: none"> <li>I understand that <b>scientists</b> make <b>observations</b> in the world and <b>collect evidence</b> to help them <b>understand</b> what is happening</li> <li>I understand that <b>evidence</b> helps develop <b>theories</b> and <b>models</b> to <b>explain</b> what is happening</li> <li>I understand that <b>science</b> is used to <b>solve problems</b> and create new <b>products</b> for the world</li> <li>I understand that <b>science</b> can lead to many <b>conversations</b> and <b>questions</b> about how it is used in both good (<b>positive</b>) and bad (<b>negative</b>) ways</li> </ul>		
Skills	<ul style="list-style-type: none"> <li>Observe, participate, show</li> </ul>	<ul style="list-style-type: none"> <li>2.P1U1.1 Plan and carry out an investigation to determine that matter has mass, takes up space, and is recognized by its observable properties; use the collected evidence to develop and support an explanation.</li> <li>2.P1U1.2 Plan and carry out investigations to gather evidence to support an explanation on how heating or cooling can cause a phase change in matter.</li> <li>2.P4U1.3 Obtain, evaluate and communicate information about ways heat energy can cause change in objects or materials</li> </ul>	<ul style="list-style-type: none"> <li>I can <b>observe</b> and <b>collect evidence</b> to learn more about <b>matter</b>; I can use my <b>evidence</b> to <b>explain</b> what I am learning</li> <li>I can <b>collect evidence</b> to <b>explain</b> how <b>heating</b> and <b>cooling matter</b> can <b>change</b> it</li> <li>I can <b>gather</b> and <b>share information</b> about how <b>heat energy</b> can change matter</li> </ul>		

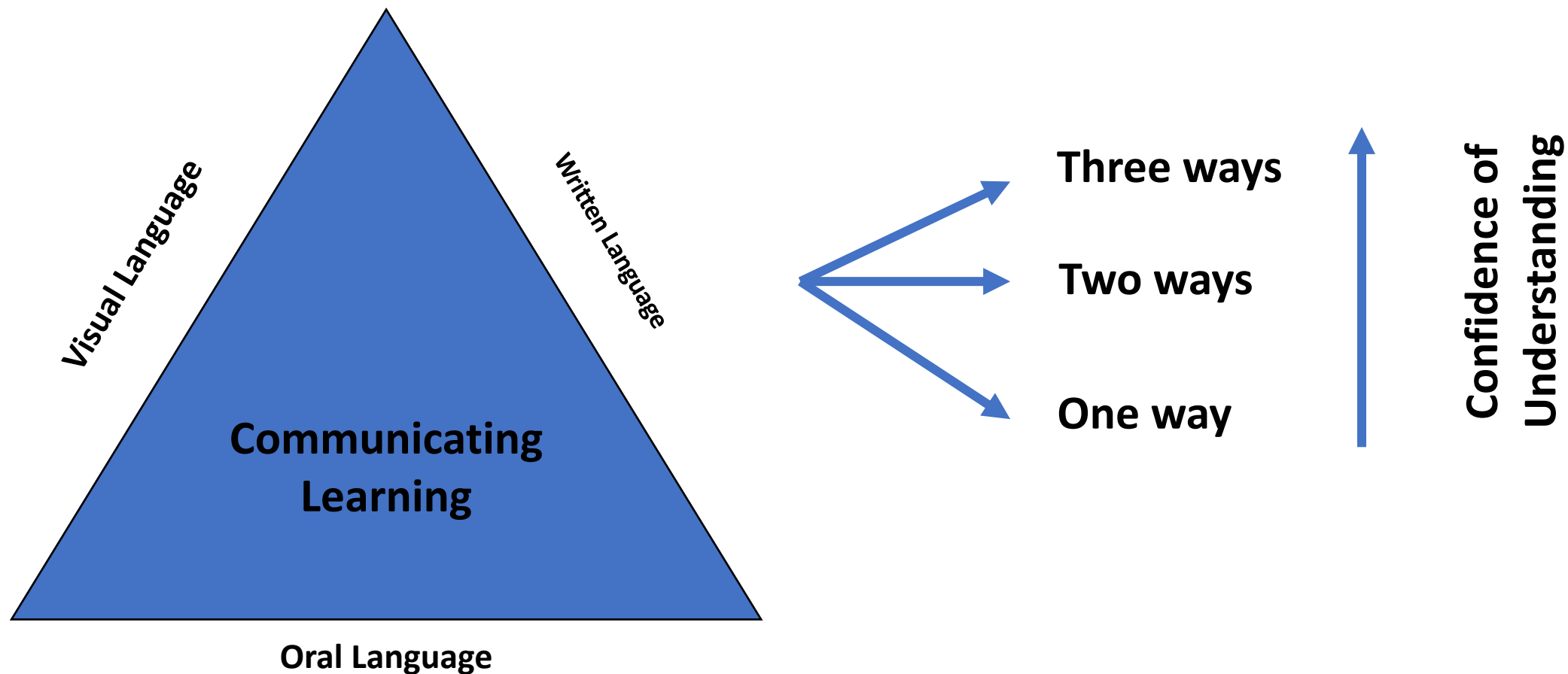
# Forward Design



# Backward Design



# How do students show what they know?

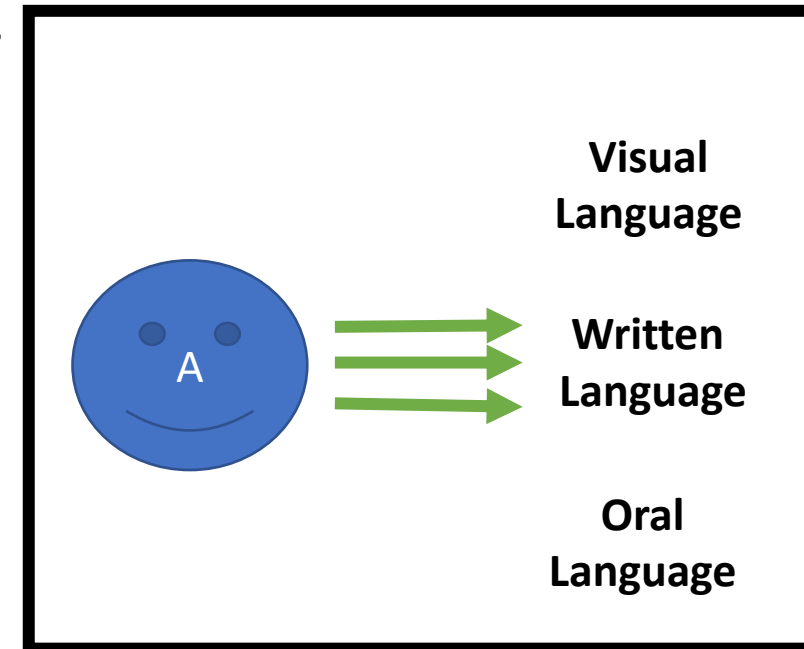
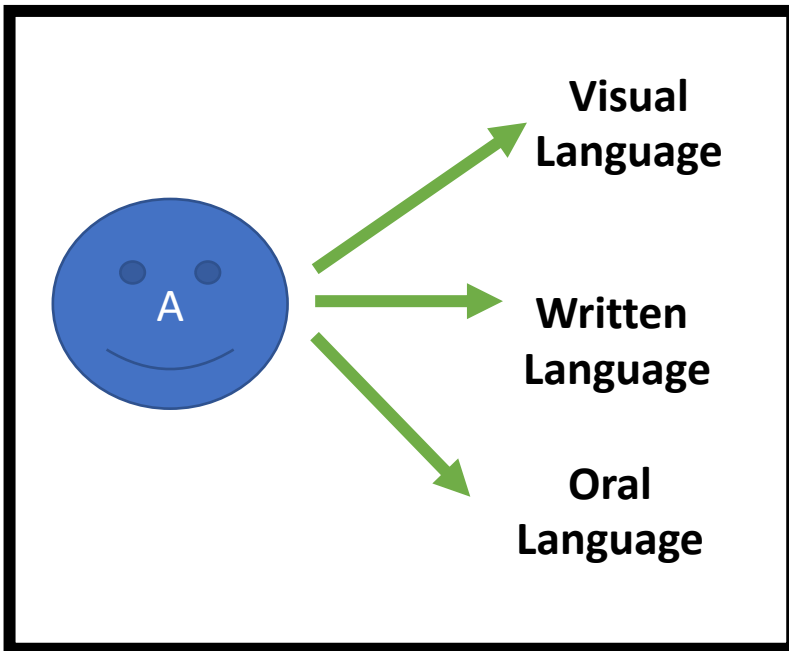


# All Languages (in literacy) are Treated Equal!

The **MORE WAYS** students can demonstrate learning, the deeper their understanding is

**Vs.**

The **NUMBER OF TIMES**, a student can show their learning in one way, the more fluent they become

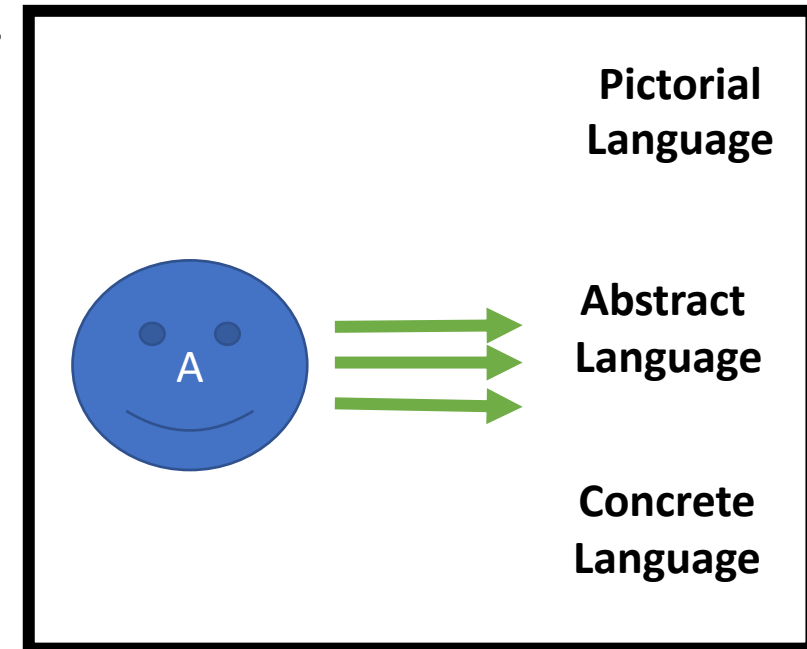
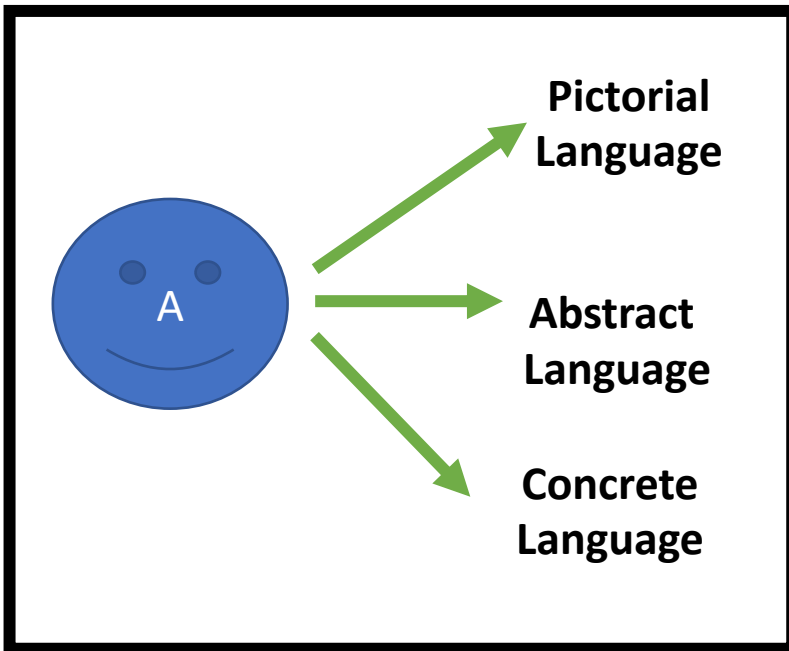


# All Languages (in numeracy) are Treated Equal!

The **MORE WAYS** students can demonstrate learning, the deeper their understanding is

**Vs.**

The **NUMBER OF TIMES**, a student can show their learning in one way, the more fluent they become



# Backwards Design Using Arizona Science Curriculum

Grade: 2		Subject Area: Science		Strand/Topic: Physical Science	
Learning Standard: Students develop an understanding of observable properties of <b>matter</b> and how <b>changes</b> in <b>energy</b> ( <b>heating</b> or <b>cooling</b> ) can <b>affect matter</b> or <b>materials</b>			Teacher Provocation Questions: What is <b>matter</b> ? How does <b>energy</b> change <b>matter</b> ?		Student Generated Questions
Key Vocabulary:					
Learning Goals	Possible Access Points (accessible version of grade level)	Curricular Language	Student Friendly Language		
Knowledge	<ul style="list-style-type: none"> <li>Solid, liquid, gas</li> <li>Fall, push, pull</li> </ul>	<ul style="list-style-type: none"> <li>P1: All matter in the Universe is made of very small particles</li> <li>P2: Objects can affect other objects at a distance.</li> <li>P3: Changing the movement of an object requires a net force to be acting on it.</li> <li>P4: The total amount of energy in a closed system is always the same but can be transferred from one energy store to another during an event.</li> </ul>	<ul style="list-style-type: none"> <li>I know that <b>matter</b> is made up of very tiny <b>particles</b> that are too small to see</li> <li>I know that <b>objects affect</b> each other, even if they are far away from each other</li> <li>I know that <b>force</b> changes how an <b>object moves</b></li> <li>I know that the amount of <b>energy</b> in a <b>closed system</b> is always the same; I know that <b>energy</b> can be <b>transferred</b></li> </ul>		
Understandings	<ul style="list-style-type: none"> <li>Using senses, experiencing, drawing what you see</li> </ul>	<ul style="list-style-type: none"> <li>U1: Scientists explain phenomena using evidence obtained from observations and or scientific investigations. Evidence may lead to developing models and or theories to make sense of phenomena. As new evidence is discovered, models and theories can be revised.</li> <li>U2: The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.</li> <li>U3: Applications of science often have both positive and negative ethical, social, economic, and/or political implications.</li> </ul>	<ul style="list-style-type: none"> <li>I understand that <b>scientists</b> make <b>observations</b> in the world and <b>collect evidence</b> to help them <b>understand</b> what is happening</li> <li>I understand that <b>evidence</b> helps develop <b>theories</b> and <b>models</b> to <b>explain</b> what is happening</li> <li>I understand that <b>science</b> is used to <b>solve problems</b> and create new <b>products</b> for the world</li> <li>I understand that <b>science</b> can lead to many <b>conversations</b> and <b>questions</b> about how it is used in both good (<b>positive</b>) and bad (<b>negative</b>) ways</li> </ul>		
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Learning Goals	Curricular Language	Student Friendly Language	Tasks & activities to create evidence of learning (Expression)		
			Visual/Kinesthetic Tasks	Speaking/Presenting Tasks	Written/Abstract Tasks
Knowledge	<ul style="list-style-type: none"> <li>P1: All matter in the Universe is made of very small particles</li> <li>P2: Objects can affect other objects at a distance.</li> <li>P3: Changing the movement of an object requires a net force to be acting on it.</li> <li>P4: The total amount of energy in a closed system is always the same but can be transferred from one energy store to another during an event.</li> </ul>	<ul style="list-style-type: none"> <li>I know that <b>matter</b> is made up of very tiny <b>particles</b> that are too small to see</li> <li>I know that <b>objects affect</b> each other, even if they are far away from each other</li> <li>I know that <b>force</b> changes how an <b>object moves</b></li> <li>I know that the amount of <b>energy</b> in a <b>closed system</b> is always the same; I know that <b>energy</b> can be <b>transferred</b></li> </ul>			
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# Using AI to generate tasks and evidence of learning

- Can you please give me an example of a (format) task to help (who) understand the (place) learning standard (curricular language)?
  - E.g. Can you please give me an example of a [visual](#) task to help [a grade 2 Science class](#) understand the [Arizona](#) learning standard P4: The total amount of energy in a closed system is always the same but can be transferred from one energy store to another during an event.
- Can you please add (place) learning standard (curricular language) to this activity?
  - Can you please include the [Arizona](#) learning standard “[U1: Scientists explain phenomena using evidence obtained from observations and or scientific investigations. Evidence may lead to developing models and or theories to make sense of phenomena. As new evidence is discovered, models and theories can be revised](#)” to this activity
- Can you explain different ways to collect evidence of learning in this activity?

# Universal Design for Learning: The Ramp for Learning

Provide multiple means of  
**Engagement**



Affective Networks  
The "WHY" of Learning

This panel features a green background with a white brain icon. The brain has several green-colored regions highlighted, representing affective networks. The text is white and positioned in the upper left and lower right areas of the panel.


Provide multiple means of  
**Representation**



Recognition Networks  
The "WHAT" of Learning

This panel features a purple background with a white brain icon. The brain has several purple-colored regions highlighted, representing recognition networks. The text is white and positioned in the upper left and lower right areas of the panel.

Provide multiple means of  
**Action & Expression**



Strategic Networks  
The "HOW" of Learning

This panel features a blue background with a white brain icon. The brain has several blue-colored regions highlighted, representing strategic networks. The text is white and positioned in the upper left and lower right areas of the panel.

# Backwards Design Using Arizona Math Curriculum



<b>Grade:</b>		<b>Subject Area:</b>	<b>Strand/Topic:</b>	
<b>Learning Standard:</b>			<b>Teacher Provocation Questions:</b>	<b>Student Generated Questions</b>
<b>Key Vocabulary:</b>				
<b>Learning Goals</b>	<b>Possible Access Points (accessible version of grade level)</b>	<b>Curricular Language</b>	<b>Student Friendly Language</b>	
			<b>What do students need to know? ( I know...)</b>	<b>What to students need to do? ( I can...)</b>

# Backwards Design Using Arizona Math Curriculum

<b>Grade:</b>		<b>Subject Area:</b>	<b>Strand/Topic:</b>	
<b>Learning Standard:</b> 7.2, 8.3, 3.2		<b>Teacher Provocation Questions:</b> 7.2, 8.3, 3.2, 3.4		<b>Student Generated Questions</b> 7.1, 7.2, 8.3, 9.1, 3.4
<b>Key Vocabulary:</b> 2.1				
<b>Learning Goals</b>	<b>Possible Access Points (accessible version of grade level)</b>	<b>Curricular Language</b>	<b>Student Friendly Language</b> 8.1, 9.1, 9.3, 6.4	
			<b>What do students need to know? ( I know...)</b>	<b>What to students need to do? ( I can...)</b>
	8.1, 8.2, 9.1, 9.3, 3.1, 3.4, 5.3, 6.1, 6.4			

# Universal Design for Learning: The Ramp for Learning

## Universal Design for Learning Guidelines

	<p>Provide multiple means of <b>Engagement</b> →</p> <p>Affective Networks The "WHY" of learning</p> 	<p>Provide multiple means of <b>Representation</b> →</p> <p>Recognition Networks The "WHAT" of learning</p> 	<p>Provide multiple means of <b>Action &amp; Expression</b> →</p> <p>Strategic Networks The "HOW" of learning</p> 
Access	<p>Provide options for <b>Recruiting Interest</b> (7) ↻</p> <ul style="list-style-type: none"> <li>Optimize individual choice and autonomy (7.1) &gt;</li> <li>Optimize relevance, value, and authenticity (7.2) &gt;</li> <li>Minimize threats and distractions (7.3) &gt;</li> </ul>	<p>Provide options for <b>Perception</b> (1) ↻</p> <ul style="list-style-type: none"> <li>Offer ways of customizing the display of information (1.1) &gt;</li> <li>Offer alternatives for auditory information (1.2) &gt;</li> <li>Offer alternatives for visual information (1.3) &gt;</li> </ul>	<p>Provide options for <b>Physical Action</b> (4) ↻</p> <ul style="list-style-type: none"> <li>Vary the methods for response and navigation (4.1) &gt;</li> <li>Optimize access to tools and assistive technologies (4.2) &gt;</li> </ul>
	<p>Provide options for <b>Sustaining Effort &amp; Persistence</b> (8) ↻</p> <ul style="list-style-type: none"> <li>Heighten salience of goals and objectives (8.1) &gt;</li> <li>Vary demands and resources to optimize challenge (8.2) &gt;</li> <li>Foster collaboration and community (8.3) &gt;</li> <li>Increase mastery-oriented feedback (8.4) &gt;</li> </ul>	<p>Provide options for <b>Language &amp; Symbols</b> (2) ↻</p> <ul style="list-style-type: none"> <li>Clarify vocabulary and symbols (2.1) &gt;</li> <li>Clarify syntax and structure (2.2) &gt;</li> <li>Support decoding of text, mathematical notation, and symbols (2.3) &gt;</li> <li>Promote understanding across languages (2.4) &gt;</li> <li>Illustrate through multiple media (2.5) &gt;</li> </ul>	<p>Provide options for <b>Expression &amp; Communication</b> (5) ↻</p> <ul style="list-style-type: none"> <li>Use multiple media for communication (5.1) &gt;</li> <li>Use multiple tools for construction and composition (5.2) &gt;</li> <li>Build fluencies with graduated levels of support for practice and performance (5.3) &gt;</li> </ul>
Internalize	<p>Provide options for <b>Self Regulation</b> (9) ↻</p> <ul style="list-style-type: none"> <li>Promote expectations and beliefs that optimize motivation (9.1) &gt;</li> <li>Facilitate personal coping skills and strategies (9.2) &gt;</li> <li>Develop self-assessment and reflection (9.3) &gt;</li> </ul>	<p>Provide options for <b>Comprehension</b> (3) ↻</p> <ul style="list-style-type: none"> <li>Activate or supply background knowledge (3.1) &gt;</li> <li>Highlight patterns, critical features, big ideas, and relationships (3.2) &gt;</li> <li>Guide information processing and visualization (3.3) &gt;</li> <li>Maximize transfer and generalization (3.4) &gt;</li> </ul>	<p>Provide options for <b>Executive Functions</b> (6) ↻</p> <ul style="list-style-type: none"> <li>Guide appropriate goal-setting (6.1) &gt;</li> <li>Support planning and strategy development (6.2) &gt;</li> <li>Facilitate managing information and resources (6.3) &gt;</li> <li>Enhance capacity for monitoring progress (6.4) &gt;</li> </ul>
	<p><b>Expert Learners</b> who are...</p>	<p><b>Purposeful &amp; Motivated</b></p>	<p><b>Resourceful &amp; Knowledgeable</b></p>

## Teacher Team UDL Guidelines Self-Assessment & Target Area Planner

UDL Language: Engagement			Accessible Language	
UDL Guideline	Providing Multiple Means of Engagement		Student Engagement	
7	Provide options for recruiting interest	Target Area	We can support students to be <b>interested</b> in what they are learning about by:	What this can look like in a _____ context
7.1	<ul style="list-style-type: none"> <li>Optimizing individual choice and autonomy</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>giving students choice and control over what they are learning about in ways that align with their interests, preferences, and needs</li> </ul>	
7.2	<ul style="list-style-type: none"> <li>Optimizing relevance, value &amp; authenticity</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>making learning relevant to the student's lives and connecting it to real world problems that are important to the students</li> </ul>	
7.3	<ul style="list-style-type: none"> <li>Minimize threats &amp; distractions</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>reducing distractions in the classroom and building a safe place for students to take risks</li> </ul>	
8	Providing options for sustaining Effort & Persistence	Target Area	We can support students to be <b>motivated</b> by:	What this can look like in a _____ context
8.1	<ul style="list-style-type: none"> <li>Heighten Salience of goals and objectives</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>clearly communicating learning goals/ intentions and why tasks and activities matter</li> </ul>	
8.2	<ul style="list-style-type: none"> <li>Vary demands and resources to optimize challenge</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>scaffolding learning by starting with accessibility and adding on challenge in goals and tasks</li> </ul>	
8.3	<ul style="list-style-type: none"> <li>Foster collaboration and community</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>building a community where learners work together by teaching collaboration and group work skills</li> </ul>	
8.4	<ul style="list-style-type: none"> <li>Increase mastery-oriented feedback</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>providing ongoing formative feedback that is relevant, clear, accessible, and timely</li> </ul>	
9	Provide options for Self-Regulation	Target Area	We can support learners to be <b>effective at coping</b> and engaging successfully when learning gets hard by...	What this can look like in a _____ context
9.1	<ul style="list-style-type: none"> <li>Promote expectations and beliefs that optimize motivation</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>helping students set learning goals that build confidence and help them take ownership of their learning</li> </ul>	
9.2	<ul style="list-style-type: none"> <li>Facilitate personal coping skills and strategies</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>teaching how to manage emotional responses &amp; about healthy emotional responses and interactions</li> </ul>	
9.3	<ul style="list-style-type: none"> <li>Develop self-assessment and reflection</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>by helping students to increase their awareness of how they are progressing towards their goal &amp; how to learn from their mistakes</li> </ul>	

## Teacher Team UDL Guidelines Self-Reflection & Target Goal Planner

UDL Language: Representation			Accessible Language	
UDL Guideline	Providing Multiple Means of Representation		Student Understanding	
<b>1</b>	<b>Provide options for perception</b>	<b>Target Area</b>	<b>We can present new information to students so that they understand it by:</b>	<b>What this can look like in a _____ context</b>
1.1	<ul style="list-style-type: none"> <li>Offer ways of customizing the display of information</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Sharing information in formats that are flexible</li> </ul>	
1.2	<ul style="list-style-type: none"> <li>Offer alternatives for auditory information</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Utilizing modalities that compliment auditory information (visuals, tactile, movements etc.)</li> </ul>	
1.3	<ul style="list-style-type: none"> <li>Offer alternatives for visual information</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Utilizing modalities that compliment visual information (descriptions, objects, auditory clues, reader)</li> </ul>	
<b>2</b>	<b>Providing options for language and symbols</b>	<b>Target Area</b>	<b>We can share different options/ examples of language and symbols to support student understanding by:</b>	<b>What this can look like in a _____ context</b>
2.1	<ul style="list-style-type: none"> <li>Clarify vocabulary and symbols</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Pre-teaching important vocabulary, symbols, numbers ,labels in many ways (written, oral, visual examples)</li> </ul>	
2.2	<ul style="list-style-type: none"> <li>Clarify syntax and structure</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Highlighting and teaching patterns and properties in systems (e.g. grammar, notation, taxonomies, equations etc.)</li> </ul>	
2.3	<ul style="list-style-type: none"> <li>Support decoding of text, mathematical <u>notation</u> and symbols</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Teaching and using supports and strategies for students to understand written text, mathematical notation, and symbol use (unless the goal is de-coding ability)</li> </ul>	
2.4	<ul style="list-style-type: none"> <li>Promote understanding across languages</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Teaching and using translators, descriptions, movement &amp; visuals to support understanding in unfamiliar and multiple languages</li> </ul>	
2.5	<ul style="list-style-type: none"> <li>Illustrate through multi-media</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Using multi-media to support understanding (videos, graphics, activities)</li> </ul>	
<b>3</b>	<b>Provide options comprehension</b>	<input type="checkbox"/>	<b>We can provide options to help students understand new information by:</b>	<b>What this can look like in a _____ context</b>
3.1	<ul style="list-style-type: none"> <li>activate or supply background knowledge</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>building prior knowledge before teaching new information</li> </ul>	
3.2	<ul style="list-style-type: none"> <li>Highlight patterns, critical features, big ideas and relationships</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Connecting new learning to big ideas, other learning, other contexts (familiar and unfamiliar)</li> </ul>	
3.3	<ul style="list-style-type: none"> <li>Guide information processing and visualization</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Including learning tasks that allow students to process new information (e.g. summarizing, categorizing, prioritizing)</li> </ul>	
3.4	<ul style="list-style-type: none"> <li>Maximize transfer and generalization</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Giving students opportunities to connect how they learned and how they can transfer those learning skills/ strategies/ supports to new settings</li> </ul>	

Teacher Team UDL Guidelines Self-Reflection & Target Goal Planner

UDL Language: Expression			Accessible Language	
UDL Guideline	Providing Multiple Means of Action & Expression		Student Communication of Learning	
4	Providing options for physical action	<b>Target Area</b>	We can provide options for students to <b>communicate using tools</b> and assistive technology by:	What this can look like in a _____ context
4.1	<ul style="list-style-type: none"> <li>Vary the methods for response and navigation</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>providing tools/ assistive technologies to support motor skills to interact with instructional materials (i.e. alternatives to pencil/paper)</li> </ul>	
4.2	<ul style="list-style-type: none"> <li>Optimize access to tools and assistive technologies</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>providing support and teaching how to use tools effectively (i.e. teaching how to use tools/assistive technologies as supports)</li> </ul>	
5	<ul style="list-style-type: none"> <li><b>Provide options for expression and communication</b></li> </ul>	<b>Target Area</b>	<ul style="list-style-type: none"> <li>We can provide options for students to <b>show what they know &amp; communicate</b> their learning by:</li> </ul>	What this can look like in a _____ context
5.1	<ul style="list-style-type: none"> <li>Use multi-media for communication</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>teaching new formats to develop a wider range of expression using multimedia and materials (oral/visual/written) (concrete/pictorial/abstract)</li> </ul>	
5.2	<ul style="list-style-type: none"> <li>Use media tools for construction and composition</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>offering supports and strategies for students to create written output (word prediction, text-to-speech, mapping tools, sentence starters etc.)</li> </ul>	
5.3	<ul style="list-style-type: none"> <li>Build fluencies with graduated levels of support of support for practice and performance</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>supporting increasing fluency by offering scaffolded options of challenge and supports to increase independence</li> </ul>	
6	<ul style="list-style-type: none"> <li><b>Provide options for executive functions</b></li> </ul>	<b>Target Area</b>	<ul style="list-style-type: none"> <li>We can provide options for students to know and <b>set goals and make decisions</b> about what supports they need to meet the goals by:</li> </ul>	What this can look like in a _____ context
6.1	<ul style="list-style-type: none"> <li>Guide appropriate goals setting</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>guiding students through reflection, self-assessment, and goal setting with curricular and core competencies</li> </ul>	
6.2	<ul style="list-style-type: none"> <li>Support planning and strategy development</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>modelling how to use supports and strategies and empowering students to make individual decisions about what they need to meet goals</li> </ul>	
6.3	<ul style="list-style-type: none"> <li>Enhance managing information and resources</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>teaching students to organize their evidence of learning and determine their best examples of learning</li> </ul>	
6.4	<ul style="list-style-type: none"> <li>Enhance capacity for monitoring progress</li> </ul>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>using assessment checklists, learning maps, one-point rubrics and student work samples to provide feedback to students and model self-assessment</li> </ul>	

# Tumwater School District

Tumwater, Washington

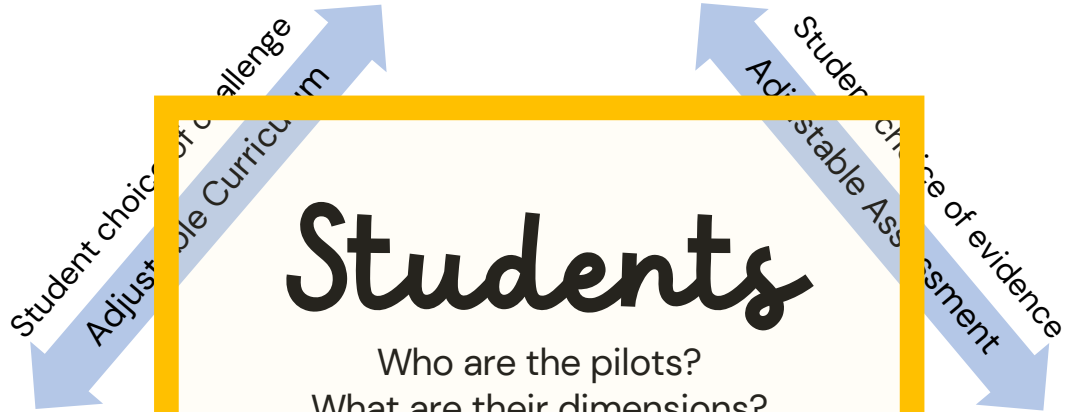
Peter G Schmidt Elementary School - Grade 5 - Science

## Coaching Sessions (5 x 90 min sessions)

	Session 1	Session 2	Session 3	Session 4	Session 5
<b>What we did together in 90 min session</b>	Getting to know learners <ul style="list-style-type: none"><li>- Class Review</li><li>- Target Students</li><li>- Needs Based Reflection</li></ul>	Making decision to support learning <ul style="list-style-type: none"><li>- Needs Based Support Plan</li></ul>	Designing Inclusive Learning Experiences <ul style="list-style-type: none"><li>- Backwards Design</li><li>- Learning Continuums</li></ul>	Designing Inclusive Learning Experiences <ul style="list-style-type: none"><li>- UDL Lesson Design</li></ul>	<ul style="list-style-type: none"><li>- Assessing Student Learning</li><li>- Sharing our learning</li></ul>
<b>What teams did in between sessions</b>	<ul style="list-style-type: none"><li>- Gather information from students</li></ul>	<ul style="list-style-type: none"><li>- Teach a needs-based strategy lesson</li></ul>	<ul style="list-style-type: none"><li>- Gather curricular resources</li></ul>	<ul style="list-style-type: none"><li>- Teach a lesson</li><li>- Gather evidence</li></ul>	<ul style="list-style-type: none"><li>- Share the process with others</li></ul>

What grade level curriculum are we using?  
What are the learning standards?

# CURRICULUM & ASSESSMENT DESIGN



# NEEDS BASED DESIGN

What are the student needs?  
What barriers are getting in the way?  
What do student require to navigate needs & barriers?

# INSTRUCTIONAL DESIGN

How will students show growth within the learning standard?  
How do we know?

<b>Class Dimensions</b>			
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<b>Class Identities:</b> Families – half are in split families 2 families navigating cancer, 1 parent in rehab Grade – 4/5 combined Cultures: Kenyan, Caucasian, Japanese, Ethiopia, Hispanic, Pacific Islander, Religion: Christian, Language: English	<b>Class Interests:</b> Competition, trivia, puzzles, word games, brain teasers, riddles, working with friends, choice, being creative, stories and read aloud, art, service, kindergarten buddies	<b>Classroom Strengths:</b> Creating, social, healthy competition, fair, protective, aware, helping others, working with others, leadership, being aware of others, allowing others to lead, socially awareness & responsible, understanding, strong academically overall (gr 4), reading, motivated intrinsically	<b>Classroom Stretches:</b> Waiting, their turn, not always getting your way/ what you want, being aware that what is “easy” is not easy for everyone, being aware of diverse abilities, empathy and mindful of how what we say affects others, stamina, justifying their learning, deep thinking and sharing of their learning, too comfortable sometimes
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<b>Targeted Class Needs</b>			
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<b>Need: Anxiety/ Emotional Regulation</b> <b>GA, LB, JA, ES, KR, GS</b>	<b>Need: Engagement/ Motivation</b> <b>LB, JA, ES, NS</b>	<b>Need: Trauma/ Family Needs</b> <b>GA, LB, JA, ES, JK, LE</b>	<b>Need: Literacy</b> <b>GA, MA, KR, TP, AB</b>
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<b>Collaborative Team Questions</b>			
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**E: How to support literacy needs? How do we make sure they are ready for middle school?**  
**S: How do we teach them to manage their needs (anxiety etc.) so they are ready for middle school and have to navigate such a different context?**  
**C: How to support students who are not participating and often not attending? How to engage and motivate without pushing too hard?**

<b>Collaborative Team Decisions:</b>			
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<b>What works well for this class?</b> - Natural consequences, honesty & fairness, competition, roles & responsibilities as students, conversations	<b>What do we still want to try?</b> Strategies to increase self advocacy UDL Strategies to reduce barriers to engagement - Make learning relevant to students’ lives - Scaffolding learning (access to challenge)	<b>UDL Strategies to reduce barriers to representation</b> - Highlighting patterns in language systems - Using multi-media - Focus on building prior knowledge - Include processing tasks in lesson design <b>UDL Strategies to reduce barriers to Expression</b> - Guiding students through self assessment and goal setting - Model the use of supports and strategies
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## Coaching Session 1: Tumwater

School District: Tumwater SD		School: Peter J Schmidt Elementary	
Participant	Role	Target Class: Gr 4/5	Target Subject Area(s): Science 5
E. Crabtree	CT	<b>Target Student(s):</b>  <b>Gabby A</b> – Autism, Oct 2023 – first included, decoding and writing strong, anxiety, difficulty talking to peers, musically talented, scripted language, pairs well with - Mason, Lorelei, motivated by James, needs access points  <b>Mason A</b> – newly diagnosed, mild intellectual, loves fitting in, peers are motivators, likes adult attention, needs access points  <b>Lorelei B</b> – needs academic support, gives up, some personal and family medical needs – lots of emotions, anxiety, withdraws, overwhelmed, loves animals, approaching grade level  <b>James A</b> – attendance needs – family needs & trauma, medical needs, motivates Gabby, loves helping, task oriented, loves jobs, food, closer to grade level  <b>Elijah S</b> – bullied at another school, very angry, always feeling like everything is his fault/everyone is against him, long time to build trust, event can snowball to feel overwhelmed, pairs well with Mason	
S. Wernke	ST		
C. Luce	PE		
K. Doughty	Principal		
S. Bentley	Psychology		
Ms. Gina	Para		

## Classroom Support Planning: Collaborative Needs Based Reflection

**Target Classroom:**

**Classroom Teacher(s):**

**Support Teachers/Staff:**

**Date:**

1. Look at the following areas of need as a team
2. Record needs for students who have IEPs (Individual education plan) and/or LSPs (learning support plan)
3. You can refer to individual assessments and recommendations as well as specialists to determine needs if useful
4. Record needs for students in class who do not have IEP or LSP
5. Look for clusters of need and reflect on community impact
6. Determine priority classroom needs to develop Classroom Support Plan



Areas of Need	Students who have this need (underline students who have <u>IEP/504</u> )	This need impacts the community and/or there is a cluster of students who have this need	This need can be managed over time and/or not critical	This is an individual need area and/or community does not need support in this area
Addiction				
Attendance/ Lateness	JA			x
Attention	JA, RM		x	
Anxiety/ Depression	GA, LB, JA, ES, KR, GS	x		
Bullying				
Communication (receptive)				
Communication (expressive)	GA, LB		x	
Eating/Food/Allergies	LB			x
Engagement/Motivation	LB, JA, ES, NS	x		
Executive Functioning	MA, LB, JA	x		
Family/Community/Identity	JA, ES, JK, LE	x		
Frustration/ Anger	JA, ES		x	
Greif/ Trauma	GA, LB, JA, ES, KK	x		
Gross/Fine Motor Skills	LB, BB			x
Intellectual Ability (access)	GA, MA		x	
Intellectual Ability (extend)	BW, IM, MB		x	

Language				
Literacy (decoding)	MA, KR, TP, AD		x	
Literacy (understanding)	GA, MA, KR, TP, AD		x	
Literacy (written output)	MA, LB, KR, TP, AD		x	
Literacy (oral language/speaking)	GA		x	
Medical				
Memory				
Mental Health				
Numeracy	ES, KR			
Personal Care	GA			x
Personal Safety				
Physical/Mobility				
Self-Advocacy	LB			x
Self-Regulation (emotional)	GA, JA, ES	x		
Self-Regulation (behavioural)	ES	x		
Self-Regulation (learning)				
Self Esteem	LB, JA, ES	x		
Self-Harm/ Self Injurious Behaviour				
Sensory				
Social Skills	GA, LB, JA, ES	x		
Transitioning	JA, ES	x		
Other:				
Other:				

Priority Community Needs	Specialists/Individuals to connect to	Priority Individual Needs	Specialists/Individuals to connect to
Anxiety/ emotional self- Regulation	Counsellors – Jessica		
Family support/ trauma	Counsellors – Jessica, Community Schools – Diana		
Literacy	Title – Kori, Mica, Melissa		
Engagement/ Motivation	Sarah, Shelley, Jasmine, Kim		

What grade level curriculum are we using?  
What are the learning standards?

# CURRICULUM & ASSESSMENT DESIGN

Student choice of challenge  
Adjustable Curriculum

Student choice of evidence  
Adjustable Assessment

# Students

Who are the pilots?  
What are their dimensions?  
Where is their agency?

Adjustable Supports & Strategies  
Student choice of tools and actions

## NEEDS BASED DESIGN

What are the student needs?  
What barriers are getting in the way?  
What do student require to navigate needs & barriers?

# INSTRUCTIONAL DESIGN

How will students show growth within the learning standard?  
How do we know?

Who needs the MOST support?

What supports & strategies are useful for ONE?  
(Individualized)

- Reading IEP
- 3/4 x week individual intervention with CT or parent volunteer (one on one)
- G (replacement literacy instruction - comprehension)

Essential

What supports & strategies are useful for SOME? (Choice for ALL)

- Title reading intervention (decoding) 4 x week
- (UDL strategies to help student choose)

Targeted

What supports & strategies are useful for MOST/ALL?

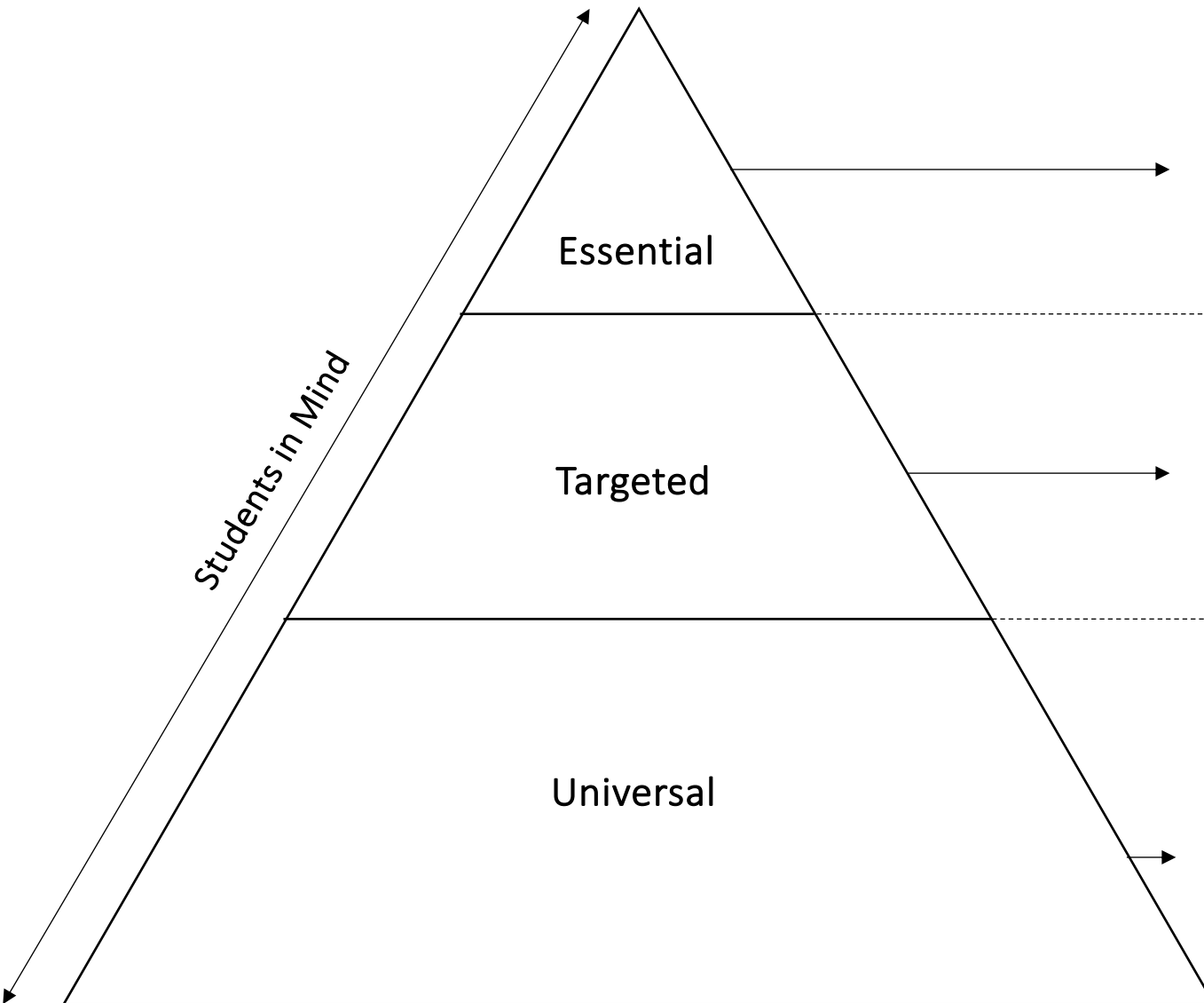
- Access to grade level curriculum
- Fluency passage (at independent level) – at home
- Weekly read with parent volunteers
- Vocabulary support & practice (word ladders/activities/plexer)
- Classroom read aloud every day
- Library
- Different levels of text level for assessment
- Strategic intervention time
- WIN time

Universal

Students in Mind

Who needs the MOST challenge?

Who needs the MOST support?



What supports & strategies are useful for ONE? (Individualized)

- Communication with school team (set up other places to go if needed)
- Individual debriefing
- Check in/ check out system (with resource)
- Built in time at The Nest in schedule
- G: Level of problem (1-5 and how to respond, reinforcement system)

What supports & strategies are useful for SOME? (Choice for ALL)

- Calming kit
- Take a break (check in)
- Sensory tools (e.g. fidgets, items from home)
- Choice to go The Nest

What supports & strategies are useful for MOST/ALL?

- Morning meeting, classroom conversations
- Mindful minutes – teaching a strategy
- Routines & structures
- Technology – all practice a strategy (e.g. 5 finger breathing)
- Lessons with counsellor (tools in toolbox)
- Classroom conversations (power of yet, Factor of fear)
- Trust when they need something
- Open communication with families (e.g. Dojo)
- Access to The Nest (SEL space)

What grade level curriculum are we using?  
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## INSTRUCTIONAL DESIGN

How will students show growth within the learning standard?  
How do we know?

# Backwards Design Planning

<b>Grade:</b>	<b>Subject Area: Science</b>	<b>Strand/Topic:</b>
<b>Learning Standard:</b>	<b>Unit Guiding Question(s):</b>	
<b>Key Vocabulary:</b>		
<b>Learning Goals</b>	<b>Curricular Language What do Students need to Know and Do?</b>	<b>Student Friendly Language</b>
<b>Science and Engineering Practices</b>		
<b>Disciplinary Core Ideas</b>		
<b>Crosscutting Concepts</b>		

## Backwards Design Planning

Grade: 5	Subject Area: Science	Strand/Topic: Structure and Properties of Matter
<b>Learning Standard:</b> 5-PS1-1. Develop a <b>model</b> to describe that <b>matter</b> is made of <b>particles</b> too small to be seen		<b>Unit Guiding Question(s):</b> How can I use a <b>model</b> to help me understand that some <b>matter</b> is made up of <b>particles</b> that are <b>too small to see</b> ?
<b>Content Vocabulary:</b> model, matter, particles, idea, bulk matter		<b>Skills Vocabulary:</b> create, build, change, solve a problem, observe
Learning Goals	Curricular Language What do Students need to Know and Do?	Student Friendly Language
<b>Science and Engineering Practices (skills)</b>	<b>Developing and Using Models</b> building and revising simple models and using models to represent events and design solutions. Use models to describe phenomena.	<ul style="list-style-type: none"> <li>I can <b>create</b> and <b>improve</b> a <b>model</b></li> <li>I can use a model to show an <b>idea</b></li> <li>I can use a model to <b>solve a problem</b></li> </ul>
<b>Disciplinary Core Ideas (knowledge)</b>	<b>PS1.A: Structure and Properties of Matter</b> Matter of any type can be subdivided into particles that are too small to see matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations including the inflation and shape of a balloon and the effects of air on larger particles or objects.	<ul style="list-style-type: none"> <li>I know that matter can be <b>broken apart</b> into tiny particles that are too small to see</li> <li>I know that even if tiny <b>particles</b> are too small for my eyes to see, there are other ways to <b>observe</b> them</li> <li>I know that a <b>model</b> is a way to <b>observe</b> tiny <b>particles</b> too small to see</li> <li>I know some examples of <b>models</b> that can help me <b>observe</b> tiny <b>particles</b> that are too small to see</li> </ul>
<b>Crosscutting Concepts (understanding)</b>	<b>Scale, Proportion, and Quantity</b> Natural objects exist from the very small to the immensely large.	I understand that there are things that are very tiny and very large

What grade level curriculum are we using?  
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# INSTRUCTIONAL DESIGN

How will students show growth within the learning standard?  
How do we know?

Next Generation Science Standards (NGSS)		
Subject Area: Science	Strand: Matter and Its Interactions	Grade: 5
<b>Performance Expectation: 5-PS1-1</b> Students can develop a model to describe that matter is made of particles too small to be seen		<b>Guiding Unit Question:</b> How do we know that something exists if we cannot see it?
<b>Unit Vocabulary (Content):</b> properties, structures, scale, proportion, quantity, models, particles, bulk matter,		<b>Unit Vocabulary (Skills):</b> make, observe



Foundations	Student Friendly Language	Access Point	Essential	Confident	Extend
<b>Science &amp; Engineering Practices</b>	I can make a model to help me understand an idea by:	following/ participating in creating a model	planning and creating a model	creating a model to solve a problem	Adjusting or revising a model I have created
<b>Disciplinary Core Ideas</b>	I know that matter is made up of particles that are too small to see by:  I know that models can help us see particles that are too small to see by:	describing what matter is  describing that there are different states of matter  describing examples of different kinds of matter in the world	describing what bulk matter is  describing that matter (that I can see) is made up of tiny particles (that are too small to see)  describing examples of models that help to observe particles that are too small to see	describing how collecting many tiny particles can help us observe how matter takes up space  describing which part of the model is bulk matter, and which part of the model is particles	describing the relationship between matter and particles  using the model to describe the relationship between matter and how particles move when they are collected
<b>Crosscutting Concepts</b>	I know that objects in the world can be very large and very small by:	describing objects in the world that are very small and very large	describing what microscopic and macroscopic is and examples of each in the world	describing what is similar and what is different between microscopic and macroscopic objects in the world	describing what scale is and how it helps us understand microscopic and macroscopic objects

\*Description: can include but are not limited to written, oral, pictorial, and kinesthetic

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# INSTRUCTIONAL DESIGN

How will students show growth within the learning standard?  
How do we know?

# Lesson in instructional resource

## MATERIALS

### Student

- 1 Science notebook\*
- 1 [Student Investigation Sheet 2A: What Are the States of Matter?](#)
- 1 Pair of safety goggles\*

### Team of four students

- 1 Clear plastic container with lid, 24-oz
- 20 Marbles

### Teacher

- 1 Student Investigation Sheet 2A: *What Are the States of Matter?* (Teacher's Version)
- 1 Balloon
- 1 Glass beaker (100 mL) filled with ice
- 1 Glass beaker (100 mL) filled two-thirds with water
- 3 Clear containers of different shapes, filled with equal volumes of water\*
- 3 Clear plastic containers with lids, 24 oz
- 3 Colors of food coloring\*
- 1 Graduated cylinder, 1,000 mL
- 1 Hot plate\*
- 1 Modeling-clay lump (shape and size to resemble the small, rigid, solid object below)
- 1 Oven mitt\*
- 1 Pair of safety goggles\*
- 1 Resealable plastic bag, 1 gal\*
- 1 Small, rigid, solid object\* (e.g., a plastic toy car)
- 1 Thermometer
- Chart paper or whiteboard\*
- Marbles
- Markers\*

\*These materials are needed but not supplied.

1. Distribute a copy of [Student Investigation Sheet 2A: What Are the States of Matter?](#) to each student. As a brief review, instruct students to complete the first two rows of the chart individually. Ask students to share their responses.

2. Conduct Demonstration #1 where all students can observe. During the demonstration, allow students to ask questions to refine their understanding of these three states of matter.

a. Solids: Display the toy car and the lump of modeling clay. Squeeze the lump of modeling clay to change its shape. Ask:

- What did you observe when I squeezed each solid object? (*The clay changed shape, but the car did not.*)
- Did the masses of these solid objects change? Did the volumes change? (*No, the mass and volume did not change. If students do not recognize this, you may wish to form the clay back into a ball, and measure the mass and volume of both the clay and the car in front of the class. Squeeze the clay again and remeasure to demonstrate there is no change in mass or volume.*)
- Recall from the previous lesson that all matter is made of tiny building blocks called particles. If the volume or mass did not change, do you think the number of particles making up each object changed when the objects were squeezed? Explain your answer. (*No, because adding or removing particles would cause the object's volume or mass to change.*)

b. Liquids: Display the three containers of colored water you prepared, and ask students to observe the volume of liquid in each container. Pour the water from the containers of different shapes into three identical clear plastic containers to demonstrate that the quantities of liquid have equal volume. Pour the water back into the original containers to demonstrate that the volume stays the same but the liquid takes the shape of the container. Ask:

- What did you notice about the volume of each liquid? (*Students should notice that it looked like the volumes of the three liquids were different because the water levels were unequal, but when the liquids were poured into identical containers, it was obvious that they all had the same volume.*)
- What can you conclude about the volume of a liquid and the shape of its container? (*A liquid takes the shape of its container, but its volume does not change when the size of the container is changed.*)

c. Gases: Gently squeeze the balloon to demonstrate that the gas inside changes shape with the balloon. Do the same with the bag of air, and then open the seal to demonstrate that the air leaves the bag and disperses into the room. Ask:

- What did you notice when I squeezed the balloon and the bag of air? (*The gas seemed to move around inside both the balloon and the bag.*)
- How did the bag of air change when I opened it? Predict what happened to the gas inside. (*Students should predict that because the bag seemed to deflate when it was opened, the air left the bag.*)

3. Write the following statements on the board in a single column:

- A material that has definite shape and volume.
- A material that has definite volume but takes the shape of its container.
- A material that has no definite shape or volume and can expand freely to fill a container of any size or shape.

In a second column, write "solid," "liquid," and "gas." As a class, match each state of matter to one of the descriptions you wrote on the board. Instruct students to copy the descriptions into the first row of Student Investigation Sheet 2A.

#### Teaching Tip

Students may struggle to understand that solids like modeling clay have a definite shape. Explain that the modeling clay is malleable, or can change its shape, but that the individual particles that make up the modeling clay do not change in shape.

4. Explain that the next demonstration will utilize the same type of matter, water, in three different states. Students will observe phase changes, or the changes from one state of matter to another. Provide a pair of safety goggles for each student. Once you and the students have the goggles on, display the beaker of ice cubes and the beaker of water. Pour a little water from the water beaker into the beaker of ice and insert the thermometer. Measure the temperature of the ice water and record it on the board.

#### Teaching Tip

Dispel misconceptions that a material's temperature is increased only by extremes such as boiling or cooking. Bringing a glass of ice to room temperature is also an example of heating the material.

5. Place the beaker on a hot plate and begin to heat the ice water. Record the temperature every minute until all the ice has melted and the water is at a full boil. As the beaker heats up, ask students to observe what is happening and share their observations with the class. Students should notice that as the hot plate raises the temperature, the ice melts into water. The liquid water begins to boil, and some of the water turns into water vapor.

#### Teaching Tip

Exercise caution when using the hot plate. Do not touch or allow students to touch the hot plate. Also use caution when handling the beaker. Use an oven mitt or allow the beaker to cool completely before handling.

6. Turn off the hot plate and provide time for students to discuss what they observed in their groups. After some time, facilitate a class discussion using the following questions:

- How did the water change during this demonstration? How many phase changes occurred? (*Students should be able to identify two state changes: ice was heated until it became water. Water was boiled until it became water vapor.*)
- What pattern do you notice with these phase changes? (*Both of the phase changes were the result of adding heat.*)
- How can you make ice? (*Freeze water.*)

# Lesson in instructional resource

## Teaching Tip

Make sure students understand that heat energy was added to cause the phase changes they observed. Explain that when water is frozen, heat energy is removed from the system.

7. Discuss melting point, freezing point, and boiling point. Write the following definitions on the board. Direct students to copy each into their science notebooks.

- A material's freezing point is the temperature at which it changes from a liquid to a solid. For water, this is 0°C (32°F).
- A material's melting point is the temperature at which it changes from a solid to a liquid. For water, this is 0°C (32°F).
- A material's boiling point is the temperature at which it changes from a liquid to a gas. For water, this is 100°C (212°F).

Encourage students to provide examples of phenomena related to these terms, such as creating popsicles, melting ice cream, or steaming soup.

8. Ask students if they observed any particles during the demonstration. Make sure students understand that particles are too small to be seen with the eye and require a powerful microscope to view. Ask:

- Think about the ice, water, and vapor. Are these materials made of the same particles? (*Yes*)
- Do you think the number of particles changed as the water changed state? (*Answers will vary. Explain that the number of particles did not change.*)

9. Distribute 20 marbles and a clear plastic container to each group. Instruct students to work in groups of four to develop a model to describe the movement and attraction of the particles in each state of matter. Provide the following rules for students:

- You must demonstrate how particles become more or less attracted while changing from a solid to a liquid to a gas.
- You may use the container or the surface of your desk to demonstrate each state of matter.
- You may demonstrate movement by shaking the container with the lid on or moving the marbles across your desk.

## Teaching Tip

Instruct students to shake their containers quietly and to make sure the floor is clear of marbles at the end of the investigation. You may want to provide a shallow box if the desks are not flat.

10. Provide time for groups to develop their models. Allow students to struggle with the challenge before intervening, but use the following question to guide students toward an understanding particle behavior:

- Think about adding energy to something, like we added heat energy to ice and water. What typically happens when something has more energy? (*Objects with more energy tend to move faster than objects with less energy. Guide students to this conclusion by asking them to describe the behavior of a person who has a lot of energy.*)

11. Allow each group to share its model. Draw attention to similarities and differences among the models, but identify models that accurately show particles becoming less attracted and moving faster. Once all groups have shared, ask:

- What happens to particles' attraction and movement as energy is added to a system of matter? (*The particles become less attracted and move faster.*)
- Relate the models to the definitions of each state of matter. (*Students' models will vary, but they should be able to describe how their model represents the following: Solids keep their shape, so their particles are strongly attracted and do not move very much. Liquids maintain the same volume but can take the shape of their container, so their particles have less attraction and more movement. Gases have no definite shape or volume and can spread out, suggesting they are less attracted and move around the most.*)

12. Draw on the board a simple diagram of these particle arrangements. Use Figure 2.1 as a reference.

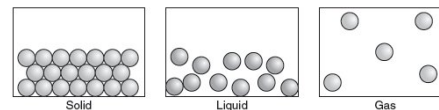


Figure 2.1: Particles are arranged differently in solids, liquids, and gases.

<b>Guiding Unit Question:</b>																
<b>Lesson Goal(s):</b>	<b>Date</b>															
<b>Connecting Activity:</b>	<b>Supports</b>															
<b>Mini Lesson:</b>																
<table border="1"> <tr> <td colspan="4"><b>Processing Tasks</b></td> </tr> <tr> <td colspan="4" style="text-align: right;">—————→</td> </tr> <tr> <td>I Need to...</td> <td>I Must...</td> <td>I Can...</td> <td>I Could...</td> </tr> <tr> <td>Access</td> <td>All</td> <td>Most</td> <td>Few</td> </tr> </table>		<b>Processing Tasks</b>				—————→				I Need to...	I Must...	I Can...	I Could...	Access	All	Most
<b>Processing Tasks</b>																
—————→																
I Need to...	I Must...	I Can...	I Could...													
Access	All	Most	Few													
<b>Transforming &amp; Personalizing Activity:</b>																

**Guiding Unit Question:** How can I use a model to help me understand that some matter is made up of particles that are too small to see?

**Lesson Goal(s):** I know that matter can be broken apart into tiny particles that are too small to see

**Date**

**Connecting Activity: picture set**

What do all these pictures have in common: states of matter

**Additional supports & strategies to ensure all students meet the "ALL"**  
- Provide vocab list, sentence stems, options for verbal explanation

**Mini Lesson: students watch a demonstration experiment (3 beakers)**

**Processing Tasks – graphic organizer connected to demonstration**

I need to...	I must...	I can...	I could...	I can try to...
Watch a science demonstration  Draw what you observe and label it with vocab words	Label which beaker is solid, liquid, gas	Draw the arrangement of particles in each state of matter	Show how the particles move in each drawing	Explain how particles break down in this experiment (E.g., What did we do to the matter)
Access	All	Most	Few	Challenge

**Transforming & Personalizing Activity: Exit Slip (post it notes or partner share)**

What helped you to learn and feel successful today?

This is lesson creates evidence for: 5-PS1-1 (NGSS)

## Backwards Design Planning

Grade: 5		Subject Area: Science	Strand/Topic: Structure and Properties of Matter
<b>Learning Standard:</b> 5-PS1-1. Develop a <b>model</b> to describe that <b>matter</b> is made of <b>particles</b> too small to be seen		<b>Unit Guiding Question(s):</b> How can I use a <b>model</b> to help me understand that some <b>matter</b> is made up of <b>particles</b> that are <b>too small to see</b> ?	
<b>Content Vocabulary:</b> model, matter, particles, idea, bulk matter		<b>Skills Vocabulary:</b> create, build, change, solve a problem, observe	
Learning Goals	Curricular Language What do Students need to Know and Do?	Student Friendly Language	
<b>Science and Engineering Practices (skills)</b>	<b>Developing and Using Models</b> building and revising simple models and using models to represent events and design solutions. Use models to describe phenomena.	<ul style="list-style-type: none"> <li>I can <b>create</b> and <b>improve</b> a <b>model</b></li> <li>I can use a model to show an <b>idea</b></li> <li>I can use a model to <b>solve a problem</b></li> </ul>	
<b>Disciplinary Core Ideas (knowledge)</b>	<b>PS1.A: Structure and Properties of Matter</b> Matter of any type can be subdivided into particles that are too small to see matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations including the inflation and shape of a balloon and the effects of air on larger particles or objects.	<ul style="list-style-type: none"> <li>I know that matter can be <b>broken apart</b> into tiny particles that are too small to see</li> <li>I know that even if tiny <b>particles</b> are too small for my eyes to see, there are other ways to <b>observe</b> them</li> <li>I know that a <b>model</b> is a way to <b>observe</b> tiny <b>particles</b> too small to see</li> <li>I know some examples of <b>models</b> that can help me <b>observe</b> tiny <b>particles</b> that are too small to see</li> </ul>	
<b>Crosscutting Concepts (understanding)</b>	<b>Scale, Proportion, and Quantity</b> Natural objects exist from the very small to the immensely large.	I understand that there are things that are very tiny and very large	



Next Generation Science Standards (NGSS)		
Subject Area: Science	Strand: Matter and Its Interactions	Grade: 5
<b>Performance Expectation: 5-PS1-1</b> Students can develop a model to describe that matter is made of particles too small to be seen		<b>Guiding Unit Question:</b> How do we know that something exists if we cannot see it?
<b>Unit Vocabulary (Content):</b> properties, structures, scale, proportion, quantity, models, particles, bulk matter,		<b>Unit Vocabulary (Skills):</b> make, observe



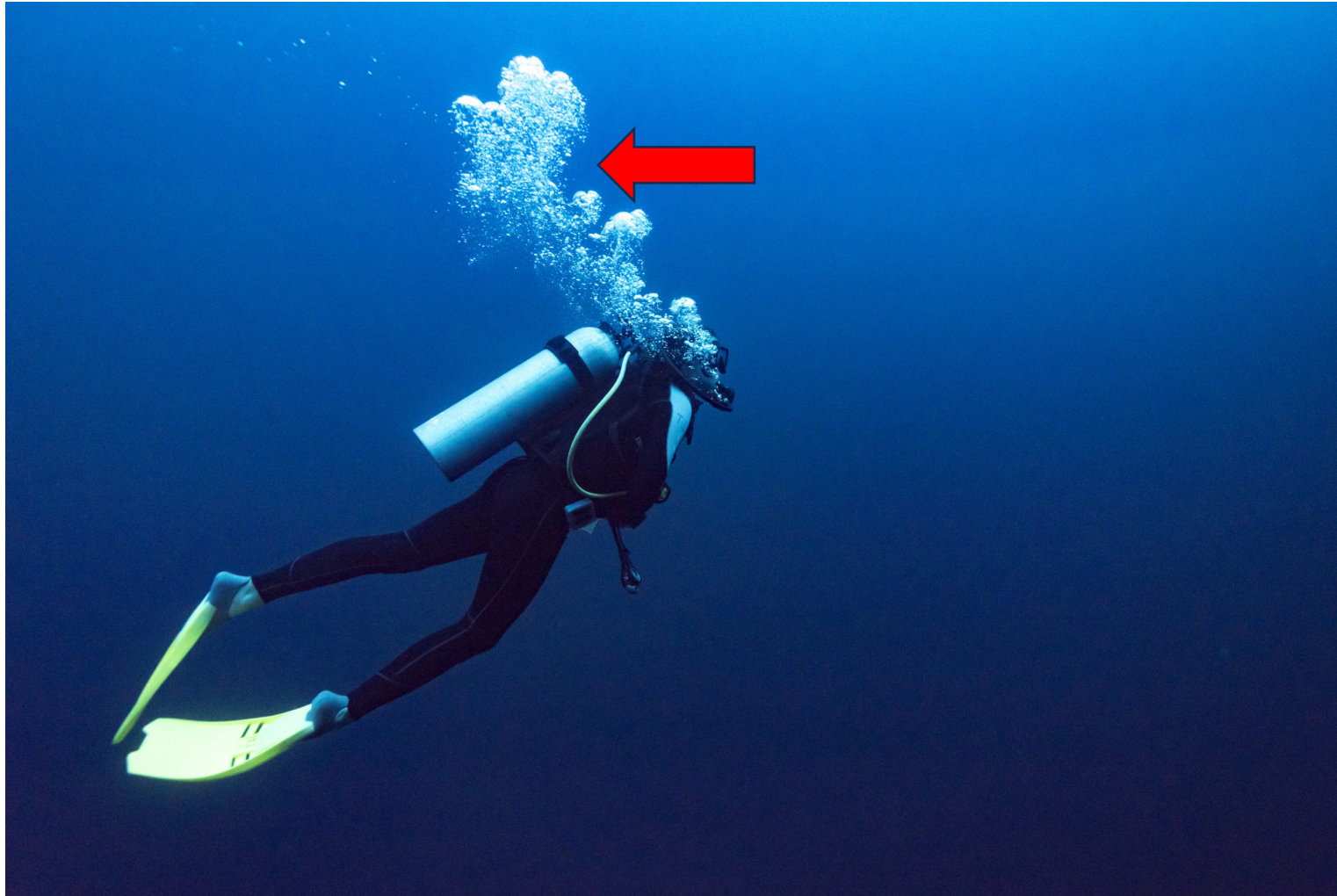
Foundations	Student Friendly Language	Access Point	Essential	Confident	Extend
Science & Engineering Practices	I can make a model to help me understand an idea by:	following/ participating in creating a model	planning and creating a model	creating a model to solve a problem	Adjusting or revising a model I have created
Disciplinary Core Ideas	I know that matter is made up of particles that are too small to see by:  I know that models can help us see particles that are too small to see by:	describing what matter is	describing what bulk matter is	describing how collecting many tiny particles can help us observe how matter takes up space	describing the relationship between matter and particles  using the model to describe the relationship between matter and how particles move when they are collected
		describing that there are different states of matter	describing that matter (that I can see) is made up of tiny particles (that are too small to see)		
		describing examples of different kinds of matter in the world	describing examples of models that help to observe particles that are too small to see	describing which part of the model is bulk matter, and which part of the model is particles	
Crosscutting Concepts	I know that objects in the world can be very large and very small by:	describing objects in the world that are very small and very large	describing what microscopic and macroscopic is and examples of each in the world	describing what is similar and what is different between microscopic and macroscopic objects in the world	describing what scale is and how it helps us understand microscopic and macroscopic objects

\*Description: can include but are not limited to written, oral, pictorial, and kinesthetic

# UDL Lesson Plan: Connect Phase

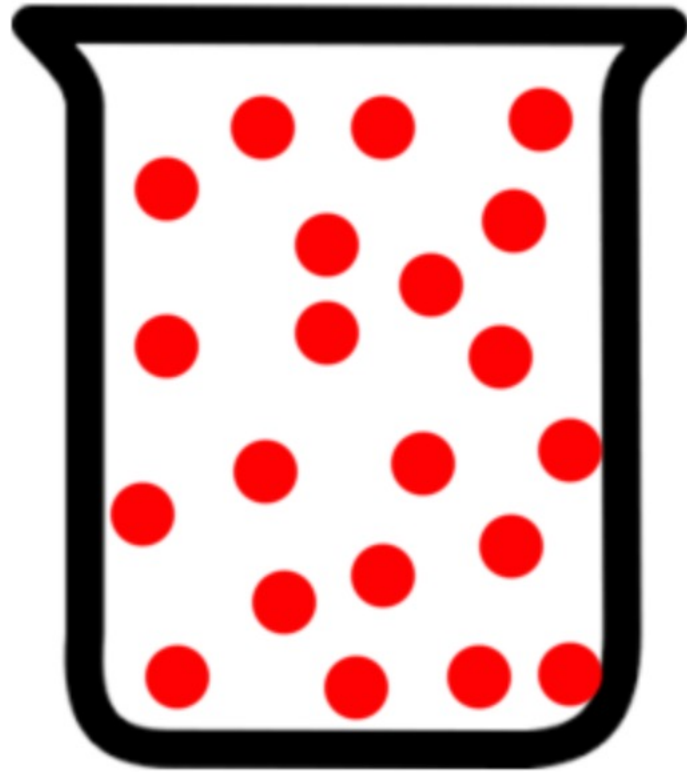
Universal Strategies	UDL Indicators Targeted	Support Needs Impacted	Students in Mind
Picture set	7.2, 8.3, 1.1, 1.2, 1.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 4.1, 5.1, 5.3	Attention, anxiety, communication, engagement/motivation, executive functioning, intellectual ability, language, literacy, memory, self regulation, self esteem, social skills	GA, MA, LB, JA, ES, RM, NS, KR, TP, AD
Highlighting key words	2.1, 2.4, 3.1, 3.2, 3.4, 5.2	Communication, engagement/ motivation, executive functioning, intellectual ability, literacy, language, memory, self regulation, self esteem,	GA, LB, ES, NS
Student Friendly Learning Goal	8.1, 3.2, 3.4, 6.1, 6.4	Anxiety, communication, engagement/motivation, executive functioning, intellectual ability, literacy, memory, self regulation, self advocacy	GA, MA, LB, JA, ES, ES, KR, GS, MA

Describe what you see.



What do you notice?

Describe what you see.



How does this image connect to the other image?

Describe what you see.



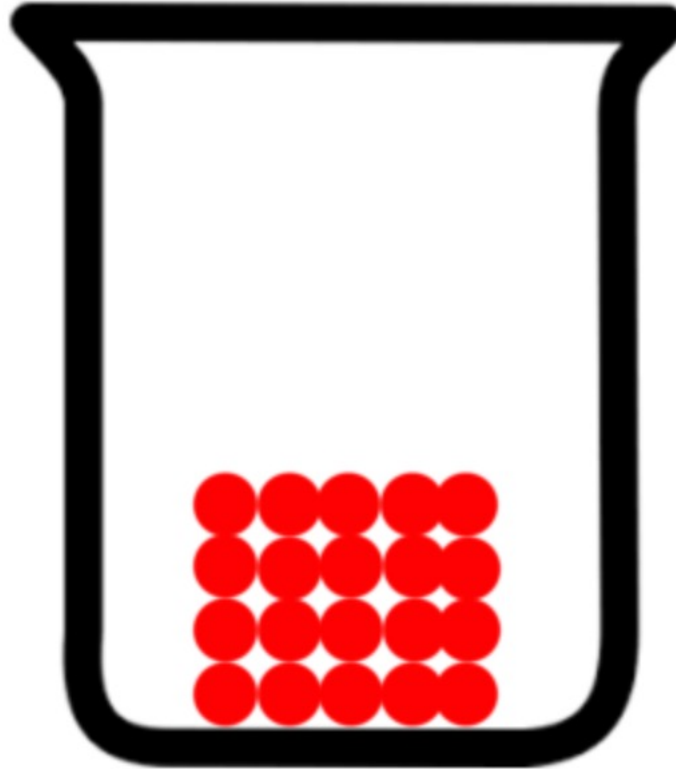
How is this image different or the same as the other images?

Describe what you see.



How is this image different or the same as the other images?

Describe what you see.



How is this image different or the same as the other images?

Describe what you see.



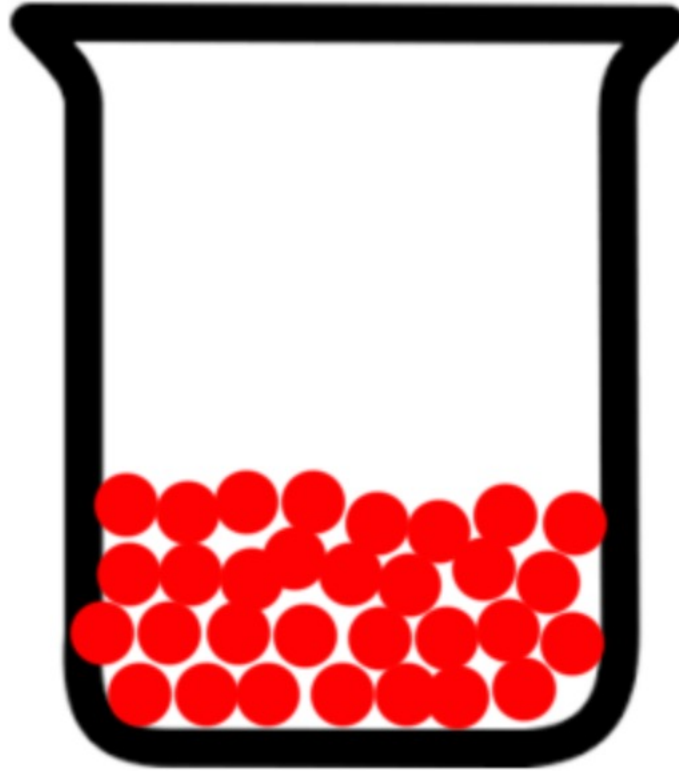
How is this image different or the same as the other images?

Describe what you see.



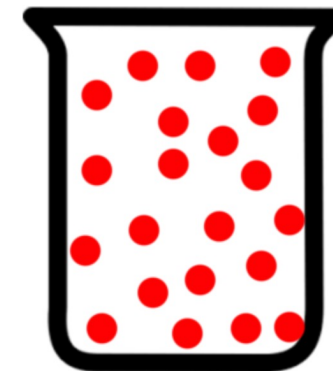
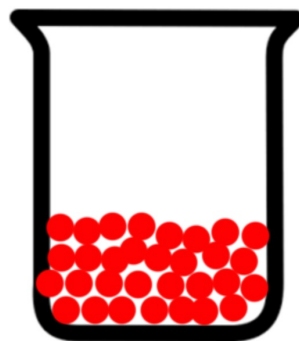
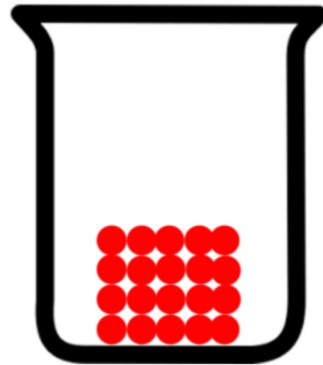
How is this image different or the same as the other images?

Describe what you see.



How is this image different or the same as the other images?

# What do all these images have in common?



All the images are different  
states of matter

SOLID

LIQUID

GAS

Our Learning Goal: I know that  
matter can be broken apart into tiny  
particles that are too small to see

SOLID

LIQUID

GAS

# UDL Lesson Plan: Mini Lesson Phase

Universal Strategies	UDL Indicators Targeted	Support Needs Impacted	Students in Mind
Modelling (concrete learning)	1.1, 1.2, 1.3, 2.4, 3.1, 3.2, 3.3, 7.3	Attention, Communication, Engagement, Intellectual Ability, Literacy, Memory, Self Regulation,	JA, RM, LB, ES, NS, GA, MA, KR, TP, AD

# UDL Lesson Plan: Processing Phase

Universal Strategies	UDL Indicators Targeted	Support Needs Impacted	Students in Mind
Scaffolded Processing Task	7.1, 8.1, 8.2, 8.4, 9.1, 9.3, 4.1, 5.3, 6.1, 6.4, 3.1, 2.1, 3.2,	Attention, Anxiety, Engagement, Frustration, Intellectual Ability, Literacy, Self-Regulation, Self Esteem, Executive Functioning, Memory, Transitioning	JA, RM, GA, LB, ES, KR, GS, NS, MA, BW, IM, MB
MUST/ CAN/ COULD Task checklist	2.4, 2.1, 3.1, 3.2, 3.3, 7.1, 7.3, 8.1, 8.2, 8.4, 9.1, 9.2, 9.3, 5.3, 6.1, 6.3, 6.4	Attention, Anxiety, Engagement, Frustration, Intellectual Ability, Literacy, Self-Regulation, Self Esteem, Executive Functioning, Memory, Transitioning, Self Advocacy, Literacy	JA, RM, GA, LB, ES, KR, GS, NS, MA, BW, IM, MB, TP, AD
MUST/ CAN/ COULD graphic organizer	5.1, 5.3, 6.1, 6.2, 6.3, 6.4, 7.1, 8.1, 8.2, 8.4, 9.1, 9.3, 1.1, 2.1, 2.3, 2.4, 3.1, 3.2, 3.4	Attention, Anxiety, Communication, Engagement, Frustration, Intellectual Ability, Literacy, Self-Regulation, Self Esteem, Executive Functioning, Memory, Transitioning, Self Advocacy, Literacy	JA, RM, GA, LB, ES, KR, GS, NS, MA, BW, IM, MB, TP, AD
Vocab list	1.1, 1.2, 1.3, 2.1, 2.3, 2.4, 3.2, 4.1, 4.2, 5.2, 7.3,	Attention, Anxiety, Communication, Engagement, Frustration, Intellectual Ability, Language, Literacy, Memory, Self regulation, Self Esteem	JA, RM, GA, LB, ES, KR, GS, NS, MA, BW, IM, MB, TP, AD

**Guiding Question:** How can I use a **model** to help me understand that some **matter** is made up of **particles** that are too small to see?

**Learning Goal:** I know that **matter** can be **broken apart** into tiny **particles** that are too small to see

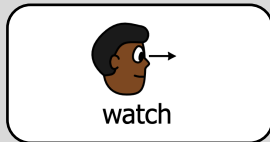
**Task:** Observe a science demonstration

Everyone starts together

Go as far as you can!

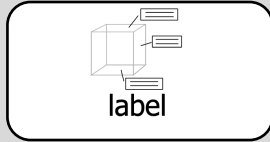
**I NEED to:**

- Watch the **science demonstration**
- Create a **diagram** that shows the **science demonstration** that you watched



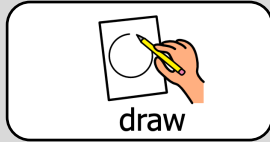
**I MUST:**

- Label your **diagram** with vocabulary **words**



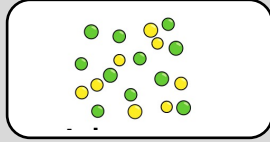
**I CAN:**

- For each state of **matter**, **draw** the **tiny particles** that are **too small to see**



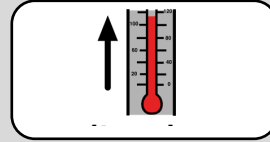
**I COULD:**

- Show on your drawing, how the **tiny particles move**



I can **TRY** to:

- Using words and drawings, show what made the **break down the tiny particles**



# Graphic Organizer in instructional resources

## Student Investigation Sheet 2A

Name \_\_\_\_\_

What Are the States of Matter?

Date \_\_\_\_\_

	<b>Solid</b>	<b>Liquid</b>	<b>Gas</b>
<b>Definition</b>			
<b>Examples</b>			
<b>Description of arrangement of particles</b>			
<b>Drawing of arrangement of particles</b>			

# MUST/CAN/COULD Graphic Organizer

**Guiding Question:** How can I use a **model** to help me understand that some **matter** is made up of **particles** that are too small to see?

<b>Learning Goal: I know that <b>matter</b> can be <b>broken apart</b> into tiny <b>particles</b> that are too small to see</b>	
Name:	Date:
<b>Need:</b> Watch the science demonstration. Create a diagram that shows the science demonstration that you watched.	<b>Must:</b> Label your diagram with vocabulary words:  matter solid liquid gas beaker heat water ice steam

**Guiding Question:** How can I use a **model** to help me understand that some **matter** is made up of **particles** that are too small to see?

<b>Learning Goal: I know that <b>matter</b> can be <b>broken apart</b> into tiny <b>particles</b> that are too small to see</b>	
Name:	Date:
<b>Can:</b> For each state of <b>matter</b> , draw the <b>tiny particles</b> that are <b>too small to see</b>	<b>Can Try:</b> Using words and drawings, show <b>what was used to make the tiny particles move</b>  _____ _____ _____
<b>Could:</b> Show on your drawing, how the <b>tiny particles move</b>	

## Vocab List

**Guiding Question:** How can I use a **model** to help me understand that some **matter** is made up of **particles** that are too small to see?

**Learning Goal:** I know that **matter** can be **broken apart** into tiny **particles** that are too small to see

Name:

Date:

**Need:** **Watch** the **science demonstration**. **Create** a **diagram** that shows the **science demonstration** that you watched.

**Must:** **Label** your **diagram** with vocabulary **words**:

matter

solid

liquid

gas

beaker

heat

water

ice

steam

**Guiding Question:** How can I use a **model** to help me understand that some **matter** is made up of **particles** that are too small to see?

**Learning Goal:** I know that **matter** can be **broken apart** into **tiny particles** that are too small to see

Name:

Date:

Can: For each state of **matter**, **draw** the **tiny particles** that are **too small to see**

Can Try: Using words and drawings, show **what was used** to **make the tiny particles move**

Could: **Show** on your drawing, how the **tiny particles move**

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# UDL Lesson Plan: Transforming & Personalizing Phase

Universal Strategies	UDL Indicators Targeted	Support Needs Impacted	Students in Mind
Exit Slip Reflection	3.4, 6.4, 5.1, 9.3	Communication, Engagement, Intellectual Ability, Literacy, Self Regulation	JA, RM, GA, LB, ES, KR, GS, NS, MA, BW, IM, MB

# Strategies to Get to Know Learners

Help us get to know: \_\_\_\_\_ Date: \_\_\_\_\_

Person connected to _____	Identities	Interests	Strengths	Stretches	Needs
Who are you and how do you know _____?	What words would you use to describe _____? What groups is _____ connected to in their community?	What is _____ interested in? What do they like to do on their own? With their friends? Family? Community?	What is _____ good at? What can they teach others?	What is hard for _____? What do you think _____ wants to get better at?	What does _____ need support with? What is important for people to know about _____?
Person 1:					
Person 2:					
Person 3:					
Person 4:					

Moore, 2023

Google Form:

<https://forms.gle/6CaTcpW3sSQnQnCp7>

**Identities**

Choose at least 3 questions to respond to from this section.

How do you identify?  
Your answer \_\_\_\_\_

What are some words that describe you?  
Your answer \_\_\_\_\_

Complete the statement: I am ...  
Your answer \_\_\_\_\_

What communities are you and your family a part of?  
Your answer \_\_\_\_\_

What are your pro nouns?  
Your answer \_\_\_\_\_

**Interests**

Choose at least 3 questions to respond to from this section.

What brings you joy?  
Your answer \_\_\_\_\_

What are some of your favourite things/activities?  
Your answer \_\_\_\_\_

What are some things that you like to do with your family? Your friends?  
Your answer \_\_\_\_\_

What do you wish you could spend more time doing or learning about?  
Your answer \_\_\_\_\_

What would you do if you had a day off?  
Your answer \_\_\_\_\_

**Strengths**

Choose at least 3 questions to respond to from this section.

What feels easy to you?  
Your answer \_\_\_\_\_

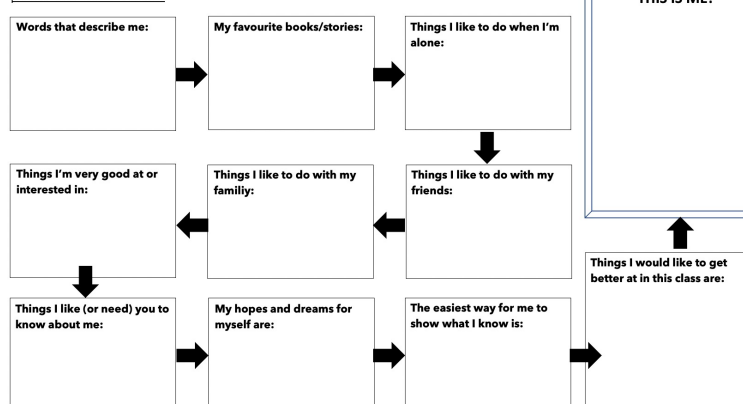
What do you know a lot about?  
Your answer \_\_\_\_\_

What unique perspective do you bring to conversations?  
Your answer \_\_\_\_\_

What are you really good at?  
Your answer \_\_\_\_\_

What could you teach to someone else?  
Your answer \_\_\_\_\_

## Who am I? Profile



<p><b>Who am I? (Identities)</b></p> <p>How do you identify? What are some words that describe you? Complete the statement: I am _____ What communities are you and your family a part of? What are your pro nouns? What languages do you speak? What cultures, races or nations do you identify with? Are there any disabilities that you identify with?</p>	<p><b>What do I love? (Interests)</b></p> <p>What brings you joy? What are some of your favourite things/ activities? What are some things that you do with your family and friends? What do you wish you could spend more time doing? What do you want to learn how to do? What would you do if you had a full day off? What do you like to learn/ read about? What kinds of shows/ movies/ books do you like?</p>	<p><b>What am I good at? (Strengths)</b></p> <p>What feels easy to you? What do you know a lot about? What perspective do you bring to conversations? What are you really good at? <b>How can I help others? (Strengths)</b> What could you teach to someone else? Why is your family/ class/group so lucky to have you? How do you help out at home? In other activities? What do you do that brings other people joy?</p>	<p><b>How do I want to grow? (Stretches)</b></p> <p>What is a goal that you have for yourself? What do you want to get better at? What is something you want to learn more about? What do you wish you could do more of? What is an area that you need some practice in? What could you work on now, that will help you in the future? What do you need support for at school? What do you wish you could do more of without help?</p>	<p><b>What makes it hard for me to grow? (Needs)</b></p> <p>What makes it hard for you to learn? What helps you learn best? What makes it hard for you to pay attention/ focus? Do you prefer to work alone or in a group? What makes it hard to get to school/ go to class? What do you wish was different about school? What materials/tools do you need in a classroom? What is important for your teacher to know about you?</p>
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Class Review:		School Team:		Date:	
<b>Class Dimensions</b>					
<b>Class Identities</b> Student Perspectives:		<b>Class Interests</b> Student Perspectives:		<b>Classroom Strengths</b> Student Perspectives:	
Team Perspectives:		Team Perspectives:		Team Perspectives:	
<b>Classroom Stretches</b> Student Perspectives:		<b>Classroom Strengths</b> Student Perspectives:		<b>Classroom Needs</b> Student Perspectives:	
Team Perspectives:		Team Perspectives:		Team Perspectives:	
<b>Class Needs</b>					
Need:		Need:		Need:	
<b>Team Goals</b>					
Some big questions and/or goals that we have for this class:					
<b>Team Reflections &amp; Decisions</b>					
What works well for this class?			What else can we do to reduce barriers for this class?		

# Strategies to Plan for the Needs of Students

## Classroom Support Planning: Collaborative Needs Based Reflection

Target Classroom: \_\_\_\_\_ Classroom Teacher(s): \_\_\_\_\_ Support Teachers/Staff: \_\_\_\_\_ Date: \_\_\_\_\_

1. Look at the following areas of need as a team
2. Record needs for students who have IEPs (Individual education plan) and/or LSPs (learning support plan)
3. You can refer to individual assessments and recommendations as well as specialists to determine needs if useful
4. Record needs for students in class who do not have IEP or LSP
5. Look for clusters of need and reflect on community impact
6. Determine priority classroom needs to develop Classroom Support Plan

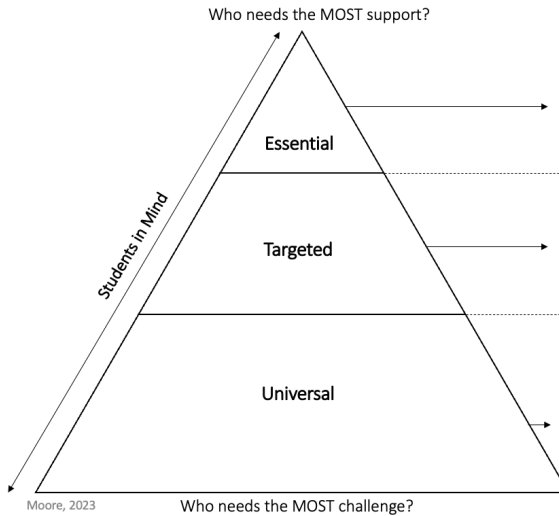
Areas of Need	Students who have this need (underline students who have IEP/LSPs)	This need impacts the community and/or there is a cluster of students who have this need	This need can be managed over time and/or not critical	This is an individual need area and/or community does not need support in this area
Addiction				
Attendance/ Lateness				
Attention				
Anxiety/ Depression				
Bullying				
Communication (receptive)				
Communication (expressive)				
Eating/Food/Allergies				
Engagement/Motivation				
Executive Functioning				
Family/Community/Identity				
Frustration/ Anger				
Grief/ Trauma				
Gross/Fine Motor Skills				
Intellectual Ability (access)				

Collaborative Needs Based Reflection

Dr. Shelley Moore, 2023

Need:

Students in Mind:



What supports & strategies are useful for ONE? (Individualized)

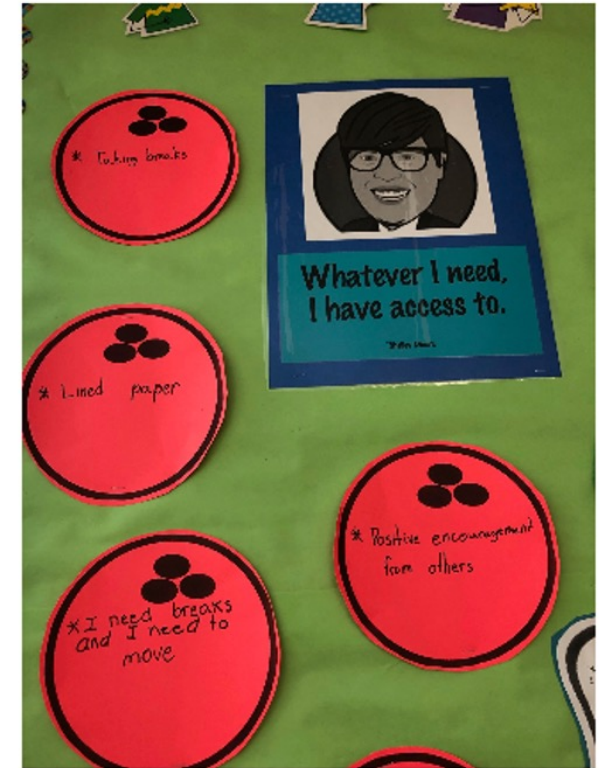
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What supports & strategies are useful for SOME? (Choice for ALL)

•  
•  
•

What supports & strategies are useful for MOST/ALL?

•  
•  
•  
•



# Strategies to Plan with Curriculum in Inclusive Ways

<b>Grade:</b>	<b>Subject Area: Science</b>	<b>Strand/Topic:</b>	
<b>Learning Standard:</b>	<b>Unit Guiding Question(s):</b>	<b>Student generated:</b>	
<b>Key Vocabulary:</b>			
<b>Learning Goals</b>	<b>Curricular Language</b> What do Students need to Know and Do?	<b>Student Friendly Language</b>	
Science and Engineering Practices			
Disciplinary Core Ideas			
Crosscutting Concepts			

<b>Guiding Unit Question:</b>					
<b>Lesson Goal(s):</b>				<b>Date</b>	
<b>Connecting Activity:</b>				<b>Additional supports &amp; strategies to ensure students meet the "ALL"</b>	
<b>Mini Lesson:</b>					
<b>Processing Task:</b>					
→					
I need to...	I must...	I can...	I could...	I can try to...	
Access	All	Most	Few	Challenge	
<b>Transforming &amp; Personalizing Activity:</b>					
This is lesson creates evidence for:					



**What is one useful idea?**

**What is one thing you want to think about?**

**What is one thing you want to learn more about?**

**What is one thing you want to share with  
someone who is not here today?**

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