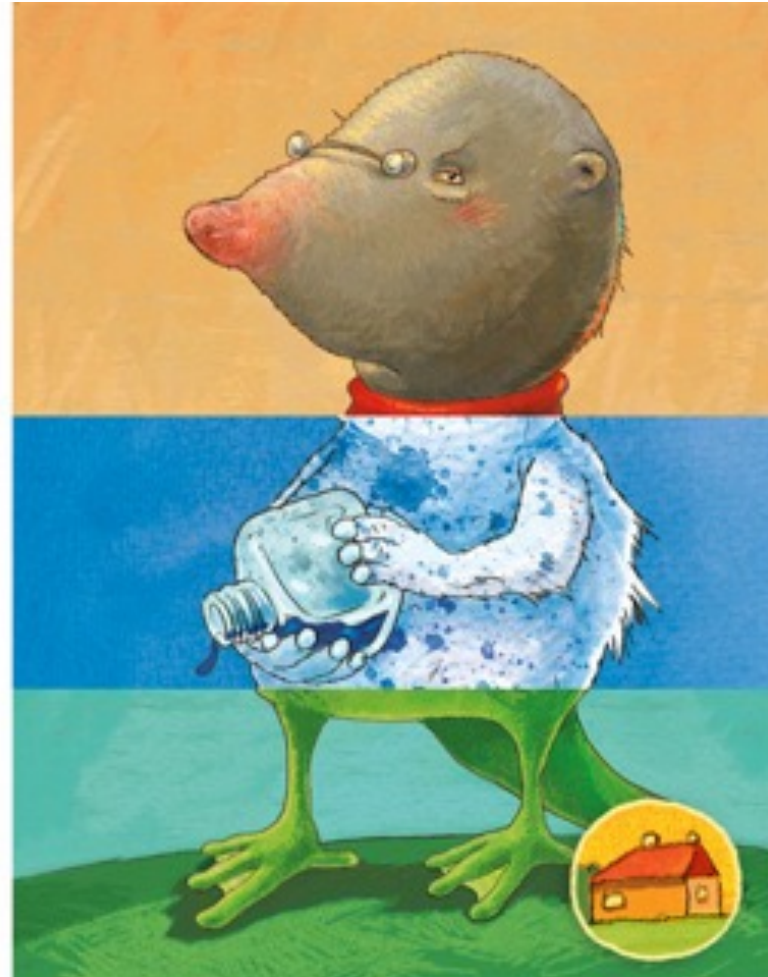


Flip Book

Miserable

Two-toed

Lizard

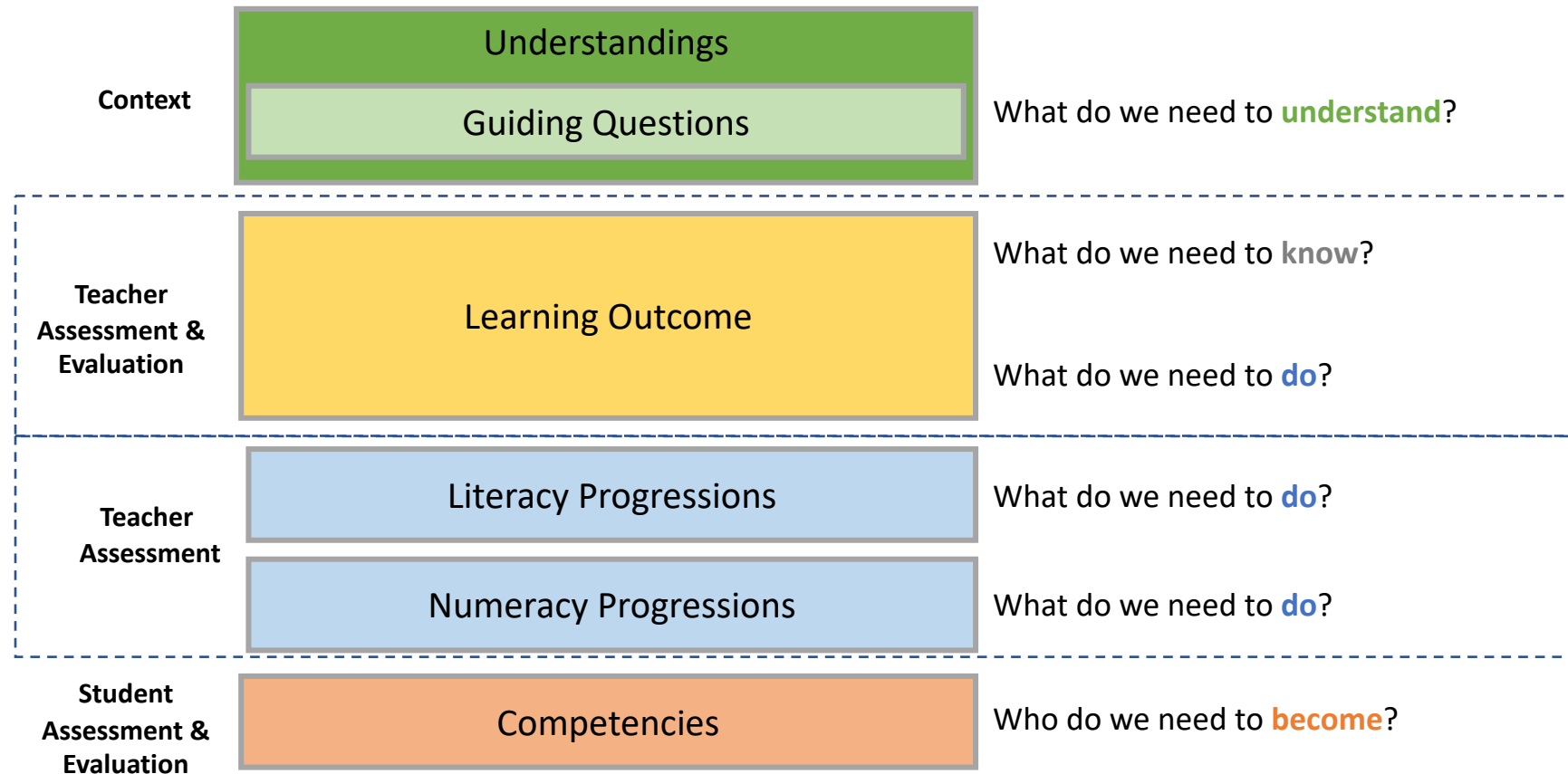


The Backwards Design FLIPBOOK Alberta's Renewed/Renewed Curriculum

Miserable

Two-toed

Lizard





Reducing barriers through curriculum design

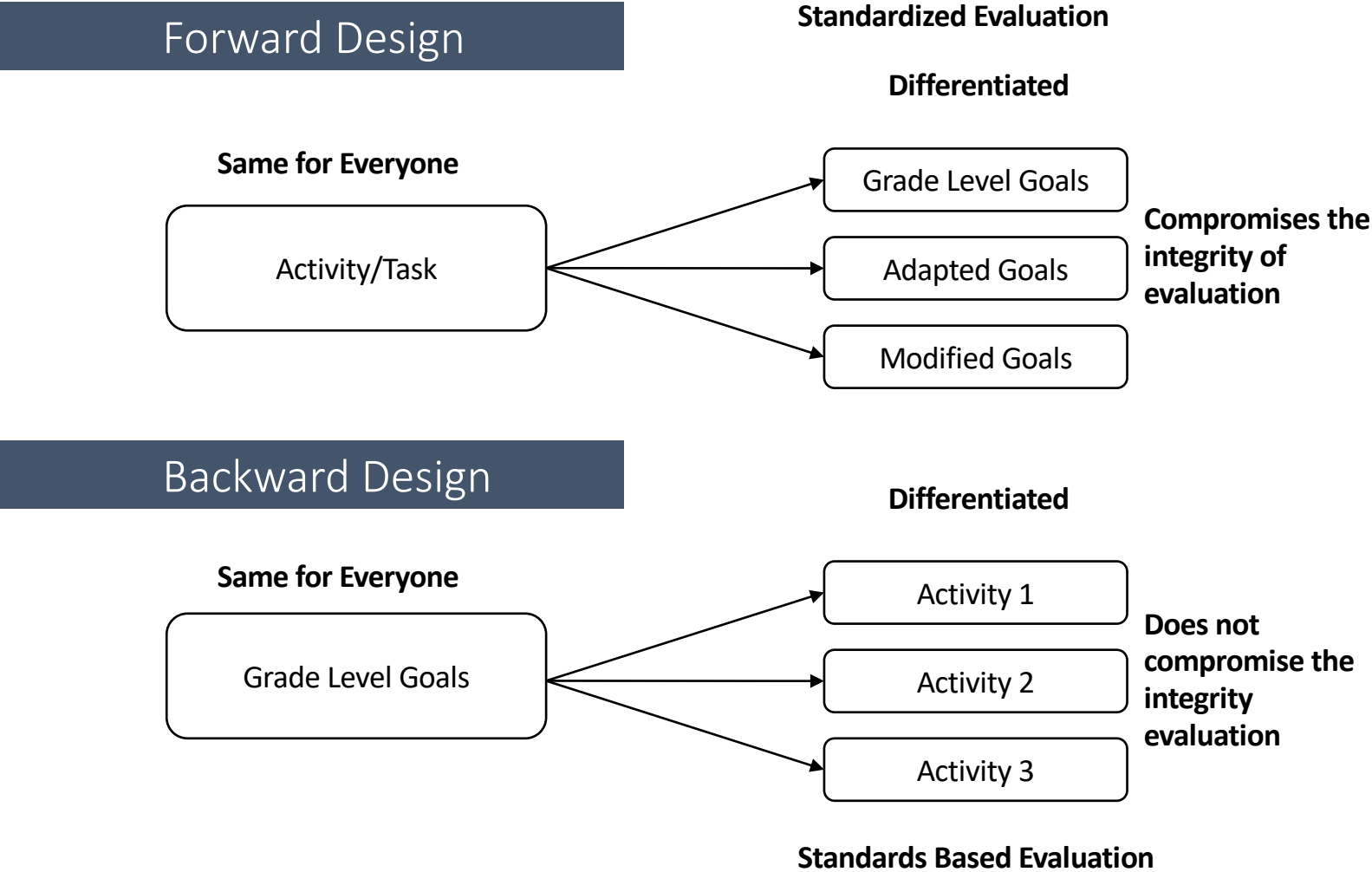


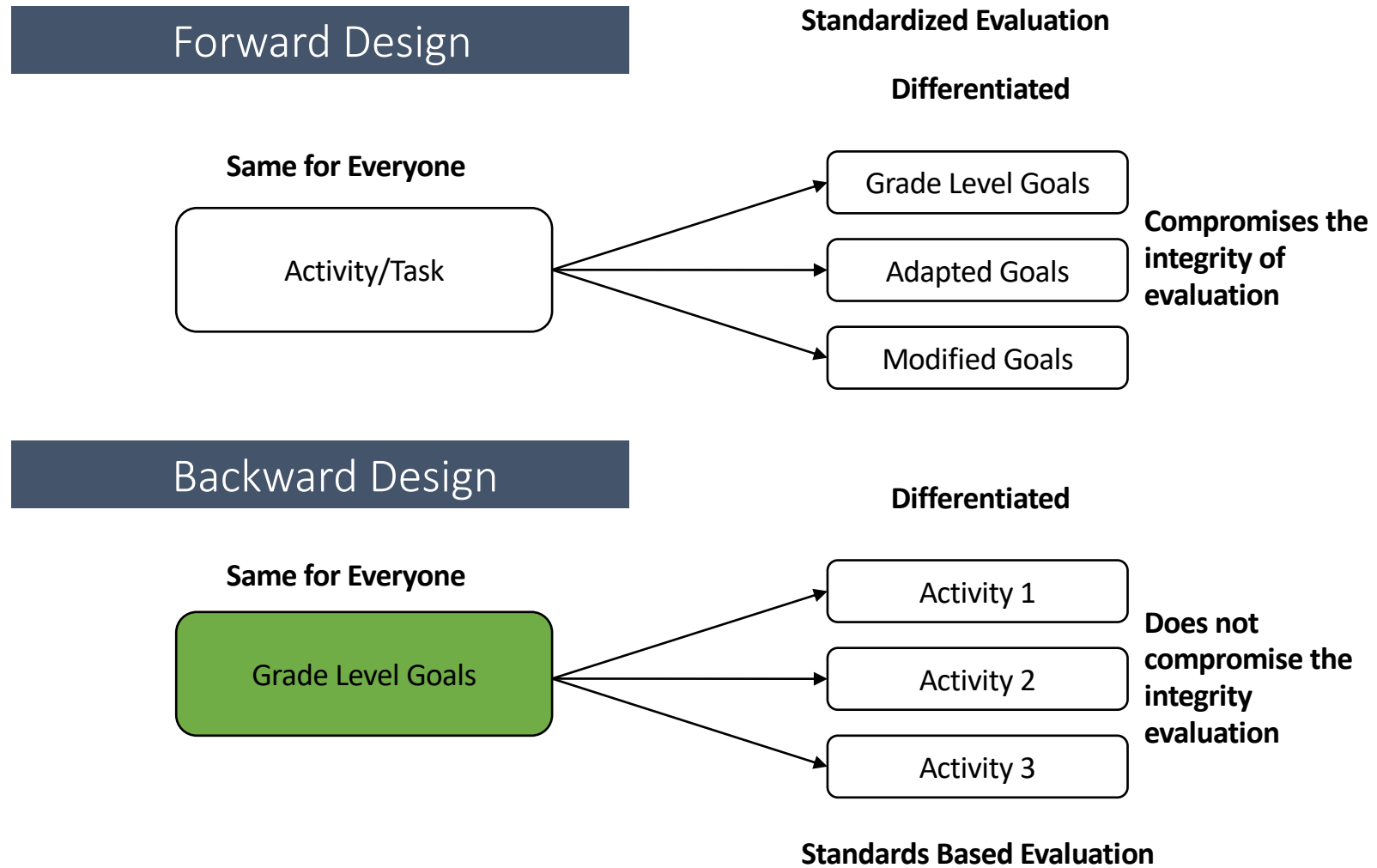
Backwards Design & Planning



Backwards Design Big Ideas:

- Every curriculum has **curricular goals**
- We need to **choose goals** to teach for every **unit**
- We organize goals around a **big idea/question**
- We need to **translate** those goals into **student friendly language**
- **Students** need to **know the goals**
- Learning activities are **EVIDENCE of learning**
- We **evaluate goals** NOT activities
- Student choose their **best examples** of evidence (triangulation)





Backwards Design: What are the GOALS?

- **Knowledge**
 - What do we need to know?
- **Skills**
 - What do we need to do?

Is curriculum linear?



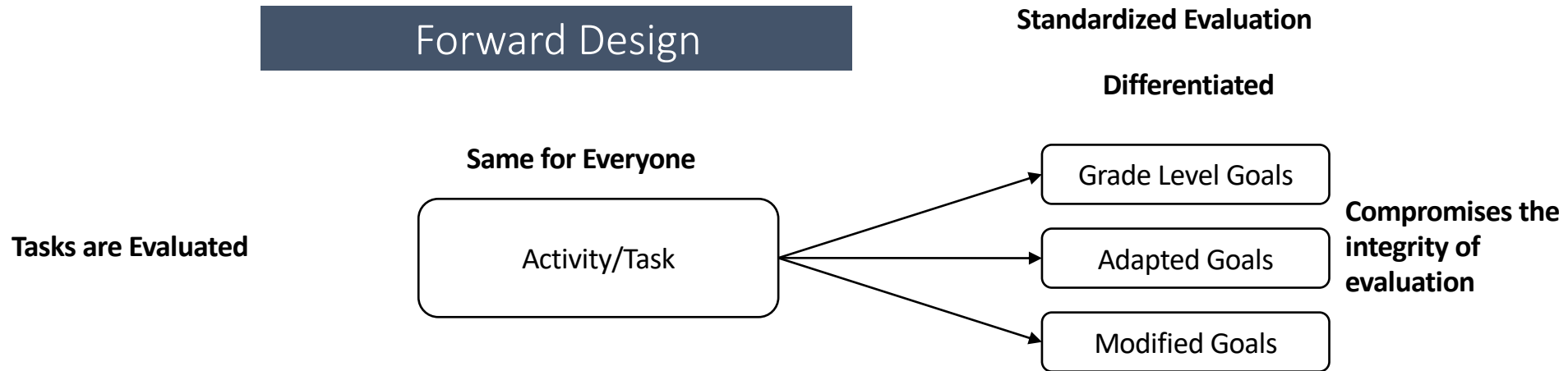
Backwards Design: What are the GOALS?

- **Backwards Design**
 - **Understandings**
 - What do we need to understand?
 - **Knowledge**
 - What do we need to know?
 - **Skills**
 - What do we need to do?
 - **Competencies**
 - Who do we need to become?

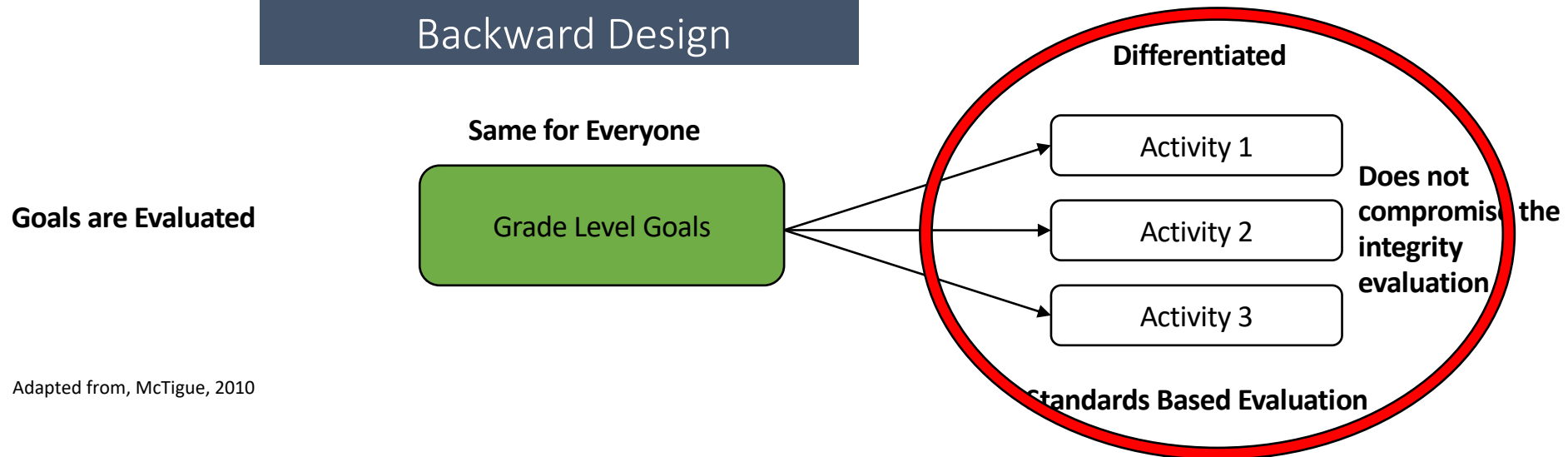
Backwards Design Alberta Goals Cheat Sheet

Backward Design Element	In Science it is called:	In Social Studies it is called:	In Math it is called:	In Language Arts/English it is called:
Topic: What is the theme/topic/context?	Unit of Study	Title	Strand	Theme of choice
Big Idea: What do we need to understand? Why are we learning this?	Overview	General Learning Outcome (GLO)	General Learning Outcome (GLO)	General Learning outcome (GLO)
Guiding Question: Turning the BIG IDEA into a questions for the students	Focus Questions	Make it out of the GLO	Make it out of the GLO	Make a question out of the theme
Content Goals: What do we need to know?	STS & Knowledge (Teacher Evaluation)	Knowledge & Understandings (Teacher Evaluation)	Specific Outcomes (Teacher Evaluation)	none
Process Goals: What do we need to do?	Skills (Teacher Evaluation)	Values & Attitudes	Skills & Processes (Teacher Assessment)	Specific learning outcomes (Teacher Evaluation)
	Attitudes	Dimensions of Thinking		

Forward Design

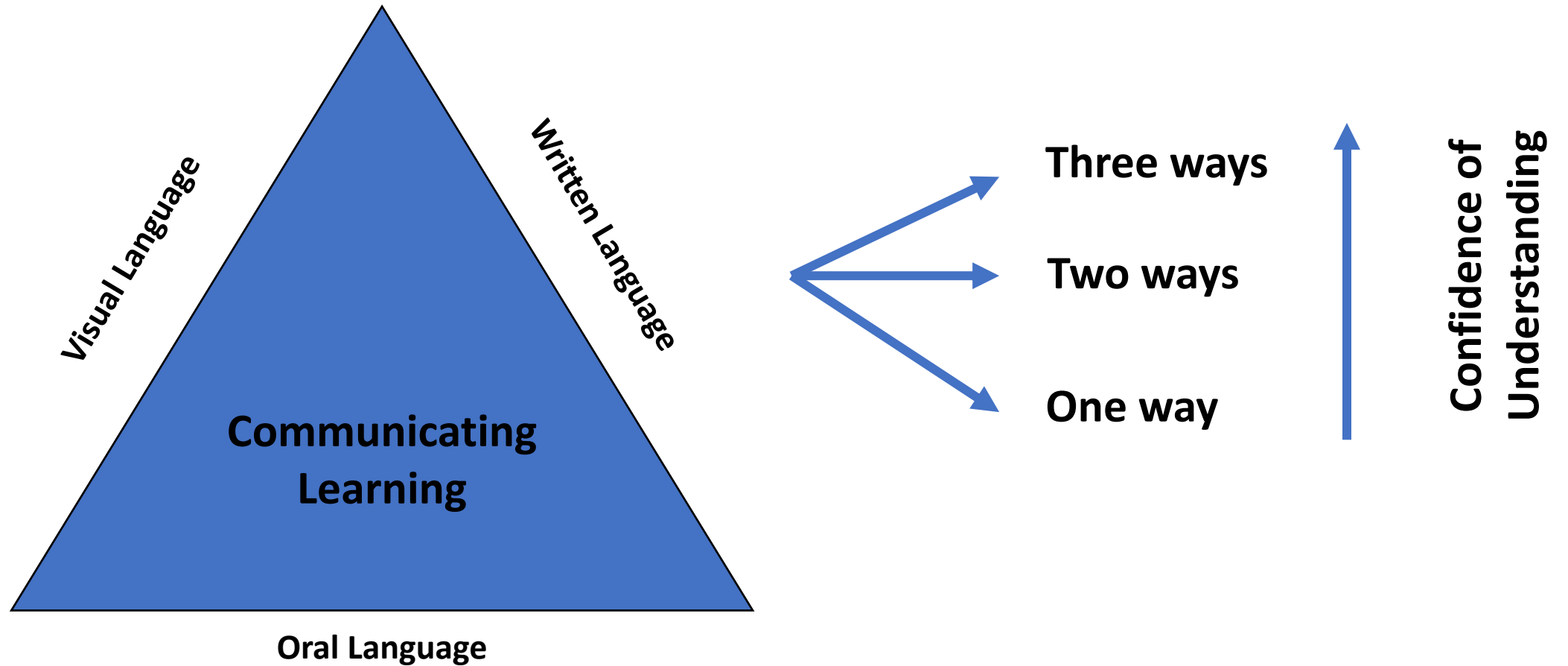


Backward Design

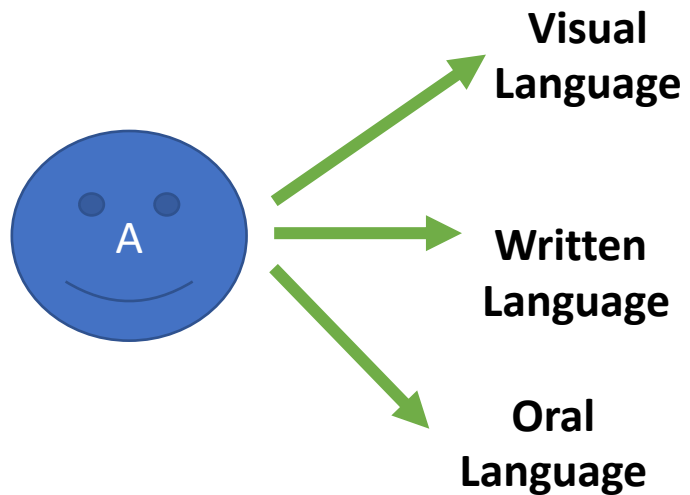


Adapted from, McTigue, 2010

How do student show what they know?



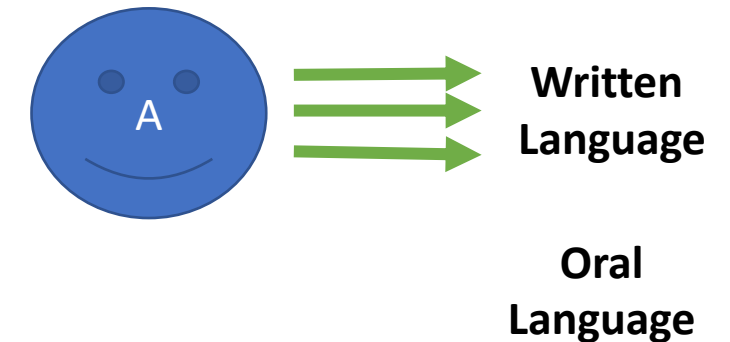
All Languages (in literacy) are Treated Equal!



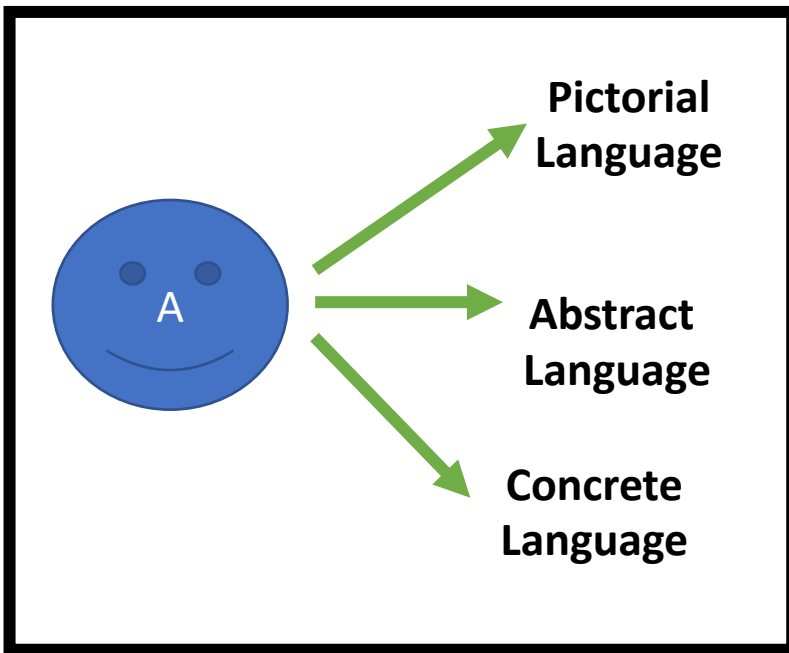
The **MORE WAYS** students can demonstrate learning, the more confident we are of meeting a goal

Instead of

The **NUMBER OF TIMES**, a student can show their learning in one way, the more confident we are of meeting a goal



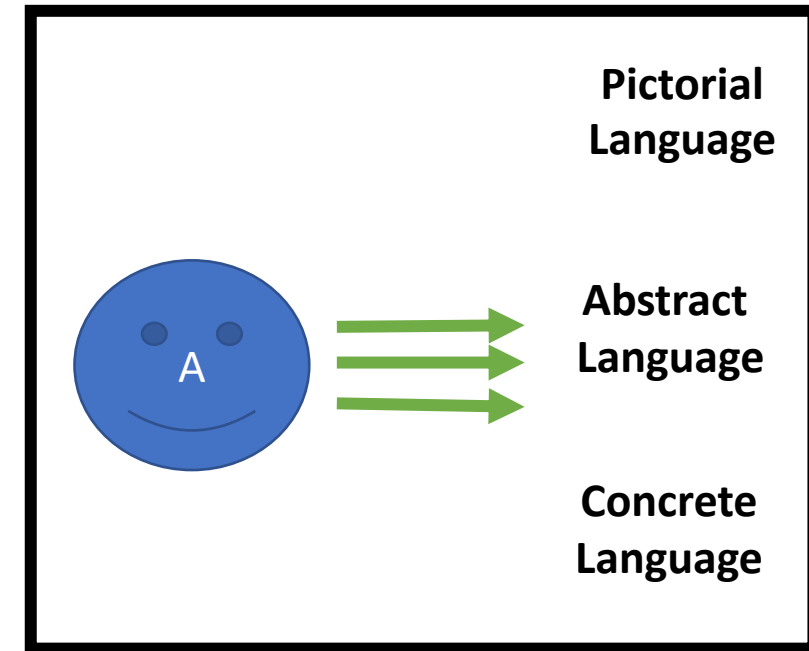
All Languages (in numeracy) are Treated Equal!



The **MORE WAYS** students can demonstrate learning, the more confident we are of meeting a goal

Instead of

The **NUMBER OF TIMES**, a student can show their learning in one way, the more confident we are of meeting a goal



Grade:	Subject Area:	Planning Team:
Big Idea(s): What do I need to Understand?		Unit Guiding Question(s):
Key Vocabulary:		
	Curricular Language	Student Friendly Language
What do students need to know? Content Goals		I know
What do students need to do? Skills/Process Goals		I can
What do students need to do? Skills/Process Goals		I can
What do students need to do? Skills/Process Goals		I can
Who do student need to be? Attitudes	I can become/ I am...	

Big Idea: Machines are used for many purposes in our daily lives when we need to transfer energy into motion or move materials in a controlled way.		Our Unit Questions: How is energy transferred in mechanical devices? How do mechanical devices provide for controlled application of energy in ways that are efficient, effective and responsible?	
Content vocabulary to know and use: mechanical devices, structures, functions, machines, subsystems, component parts, system, force, energy, transmission, mechanical system, social contexts, environmental contexts		Skill vocabulary to know and use: initiate, plan, variables, investigating, researching, data, qualitative, quantitative	
Unit Goals: Curricular Language		Student Friendly Language	
STS Outcomes	Illustrate the development of science and technology by <u>describing, comparing, and interpreting</u> mechanical devices that have been improved over time	STS Outcomes	I know how science and technology has impacted the development of mechanical devices I know how mechanical devices have improved over time
	Analyze machines by describing the structures and functions of the overall system, the subsystems and the component parts		I know the structures and functions of different machines I know how subsystems and component parts work together in an overall system
	Investigate and describe the transmission of force and energy between parts of a mechanical system		I know how the force and energy moves (transmission) between the different parts of a mechanical system
	Analyze the social and environmental contexts of science and technology , as they apply to the development of mechanical devices		I know how the development of mechanical devices impacts social and environmental contexts
Targeted Skill Outcomes	Initiating and Planning: Ask questions about the relationships between and among observable variables, and plan investigations to address those questions	Targeted Skill Outcomes	I can initiate and plan by: - asking questions about how things (variables) are related to each other investigating and researching into questions I ask
	Analyzing and Interpreting: Analyze qualitative and quantitative data , and develop and assess possible explanation		I can analyze and interpret by: - using my senses to understand and explain data (qualitative) - using amounts, numbers and values to understand and explain data (quantitative)
Targeted Attitudes	Interest in Science: Show interest in science-related questions and issues, and pursue personal interests and career possibilities within science-related fields	Targeted Attitudes	I can be interested in science by: participating, engaging in discussion, willing to complete assignments and tasks, asking questions, learning about science for fun, finding ways to connect to science topics, getting creative in science, knowing why science could be useful to life in the future/ possible careers in science)

Focus Questions: How have humans attained a presence in space? What technologies have been developed and on what scientific ideas are they based? How has the development of these technologies contributed to the exploration, use and understanding of space and to benefits on Earth?		Student Friendly Language: How do humans go to and interact with space? How has technology been used to understand and explore space? How does understand space help to understand the Earth?	
Vocabulary to know and use:			
Unit Goals: Curricular Language		Student Friendly Language	
STS	Investigate and describe ways that human understanding of Earth and space has depended on technological development by:	STS	I can explore and describe how humans use and need technology to understand the Earth the space
	Identify problems in developing technologies for space exploration, describe technologies developed for life in space, and explain the scientific principles involved		I can understand and describe technologies that have been developed for exploring space and for life in space I can find problems in the technologies that have been and are being developed
	Describe and interpret the science of optical and radio telescopes, space probes and remote sensing technologies		I can explain the science of some specific technologies
	Identify issues and opportunities arising from the application of space technology, identify alternatives involved, and analyze implications		I can find problems and see potential in studying space and space technology
Skills Outcomes	Initiating and Planning: Ask questions about the relationships between and among observable variables, and plan investigations to address those questions	Skills Outcomes	I can initiate and plan by - asking questions - investigating and researching to find answers to those questions
	Communication and Teamwork: Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures, and results		I can communicate and work as a team by: solving problems and communicating ideas
Attitude Outcomes	Scientific Inquiry: Seek and apply evidence when evaluating alternative approaches to investigations, problems, and issues (e.g., <i>seek accurate data that is based on appropriate methods of investigation; consider observations and ideas from a number of sources before drawing conclusions</i>)	Attitude Outcomes	I can be a scientific researcher by: finding evidence to answer questions and solving problems
	Stewardship: Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment (e.g., <i>consider immediate and long-term consequences of personal and group actions; objectively identify potential conflicts between responding to human wants and needs and protecting the environment</i>)		I can show stewardship by: Finding out about and understanding ideas from different perspectives, including stakeholders, that is connected to a problem or event
	Collaboration: Work collaboratively in carrying out investigations and in generating and evaluating ideas (e.g., <i>work with others to identify problems and explore possible solutions; share observations and ideas with other members of the group, and consider alternative ideas suggested by other group members; share the responsibility for carrying out decisions</i>)		I can collaborate by: working together to build ideas and solve problems
Competencies	Critical Thinking - questioning and analyzing evidence, assertions, or assumptions - demonstrating intellectual integrity, fairness, and open-mindedness	Competencies	I can be a critical thinker by: - questioning what I know by understanding evidence from multiple perspectives - being open minded to learn new things and to change my thinking and my ideas based on what I am learning (growth mindset)

Backwards Design Plan: Socials 20-4

Planning Team:

Big Idea: Students will examine the effects of nationalism, ultranationalism and the pursuit of the national interest.	Our Unit Questions: What is nationalism? Why is it important? What are the effects of nationalism?
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Vocabulary to know and use:			
Unit Goals: Curricular Language		Student Friendly Language	
Values &	20-4.2a appreciate that nations and states pursue the national interest	Values &	I understand why nations try and build national interest
	20-4.2b appreciate multiple perspectives related to the pursuit of the national interest		I understand why it is important to include different perspectives when building national interest
Knowledge & Understanding	20-4.2c explore a range of expressions of national interest	Knowledge & Understanding	I learn about different ways that national interest is shown or expressed
	20-4.2d explore the relationship between nationalism and the pursuit of the national interest		I can learn about how nationalism and building national interest connects to each other
	20-4.2e examine similarities and differences between nationalism and ultranationalism		I can look at how nationalism and ultranationalism are the same and different
	20-4.2f identify the effects of nationalism and ultranationalism during times of conflict		I can tell the effects of nationalism and ultranationalism during conflict
	20-4.2g examine ultranationalism as a cause of genocide		I can look at how ultranationalism can lead to genocide
	20-4.2h examine the relationship between nationalism and national self-determination		I can look at how nationalism and national self-determination connect to each other

Our Unit Questions

- How are carbon, oxygen, nitrogen and phosphorus cycled in the biosphere?
- How is the flow of energy balanced in the biosphere?
- How have human activities and technological advances affected the balance of energy and matter in the biosphere?

General Learning Outcome: Students will understand the constant flow of energy through the biosphere and ecosystems.			
Unit Goals: Curricular Language		Student Friendly Language	
Knowledge	20–A1.1k Students will: explain, in general terms, the one-way flow of energy through the biosphere and how stored energy in the biosphere , as a system, is eventually “lost” as heat	Knowledge	I know how energy is used in a biosphere (stored, transferred, lost)
	20–A1.2k Students will: explain how energy in the biosphere can be perceived as a balance between both photosynthetic and chemosynthetic activities and cellular respiratory activities		I know that energy in different biospheres is balanced and cycles I know how biospheres are interconnected
	20–A1.3k Students will explain the structure of ecosystem trophic levels, using models such as food chains and food webs		I know what an ecosystem is and how it is organized
	20–A1.4k Students will explain, quantitatively, the flow of energy and the exchange of matter in aquatic and terrestrial ecosystems, using models such as pyramids of numbers, <u>biomass</u> and energy		I know how energy moves in an ecosystem I know how to represent the movement of energy in ecosystems using a model
STS	20–A1.1sts Students will: explain that the process of scientific investigation includes analyzing evidence and providing explanations based upon scientific theories and concepts	STS	I can connect what I am learning about biospheres to real life examples and events
Specific Outcomes for Skills	Initiating and Planning 20–A1.1s Students will: formulate questions about observed relationships and plan investigations of questions, ideas, problems, and issues	Specific Outcomes for Skills	I can initiate and plan by: • by asking questions about what I observe in my environment • by making predicting based on what I observe
	Performing and Recording 20–A1.2s Students will: conduct investigations into relationships among observable variables and use a broad range of tools and techniques to gather and record data and information perform an experiment		I can investigate and record my observations by: • using different tools and techniques to gather data • complete an experiment
	Analyzing and Interpreting 20–A1.3s Students will: analyze data and apply mathematical and conceptual models to develop and assess possible solutions		I can analyze and interpret by: • looking for patterns in my data to help me understand what is happening • connecting my data to other scenarios and contexts • coming up with some possible solutions or explanations for what is happening • organizing and displaying my data in ways that make sense to me
	Communication 20–A1.4s Students will: work collaboratively in addressing problems and apply the skills and conventions of science in communicating information and ideas and in assessing results		I can communicate my findings by: • using SI units and Sig Digs • presenting my findings so it makes sense to others (modes representation)

Grade: Math 10C		Topic: Measurement	Planning Team:
Big Idea(s): What do I need to Understand? Students understand spatial sense and proportional reasoning			Unit Guiding Question(s): What is spatial sense? What is proportional reasoning? How are they connected?
Key Vocabulary:			
	Curricular Language		Student Friendly Language
What do students need to know? Knowledge goals			I know SI units I know Imperial Unite I know measurement strategies and how to use them to solve problems I know what 3D objects are and different types of 3D objects I know sine, cosign & tangent are trigonometric ratios and how to use them to solve problems
What do students need to do? Skills/Process Goals	Solve problems that involve linear measurement, using: • SI and imperial units of measure • estimation strategies • measurement strategies.		I can solve problems by: - Using different units of measure - Estimating - Using measurement strategies
What do students need to do? Skills/Process Goals	Apply proportional reasoning to problems that involve conversions between SI and imperial units of measure.		I can convert between SI and Imperial units of measure
What do students need to do? Skills/Process Goals	Solve problems, using SI and imperial units, that involve the surface area and volume of 3-D objects, including: • right cones • right cylinders • right prisms • right pyramids • spheres.		I can find the surface area and volume of 3D objects including: - Right cones - Right cylinders - Right prisms - Right pyramids - spheres
What do students need to do? Skills/Process Goals	Develop and apply the primary trigonometric ratios (sine, cosine, tangent) to solve problems that involve right triangles		I can use trigonometric ratios to solve problems that have a right triangle
What subject specific competencies do students need to develop?	I am/can _____ to help me understand. ME, PS, CN, R, V , C, T		I can use mental math strategies and estimation I am a problem solver I can make connections I can reason I can visualize I can use technology

Name:	Date:				Unit Topic: Measurement		
General Learning Outcome/ Unit Guiding questions: What is spatial sense? What is proportional reasoning? How are they connected?							
I still need support	I can do this!					I need some challenge	
	• I know know SI units • I know Imperial Unite • I know measurement strategies and how to use them to solve problems • I know what 3D objects are and different types of 3D objects • I know sine, cosign & tangent are trigonomic ratios and how to use them to solve problems						
	1. I can solve problems by: • Using different units of measure • Estimating • Using measurement strategies						
	2. I can find the surface area and volume of 3D objects including: • Right cones • Right cylinders • Right prism • Right pyramids • Spheres						
	3. I can convert between SI and Imperial units of measure						
	4. I can use trigonomic ratios to solve problems that have a right triangle						
	I can ...						
	use mental math strategies and estimation	solve problems	make connections	reason	visualize		use technology
	...to help me understand						

Name:	Math 10 C	Date:	Topic: Measurement			
Unit Guiding Question: What is spatial sense? What is proportional reasoning? How are they connected?						
Goals	My evidence of learning	Showing my Learning			I Need Support	I Need Challenge
	Actvtivities/ tasks	concrete	pictorial	abstract		
1. I can solve problems by: • Using different units of measure • Estimating • Using measurement strategies						
2. I can find the surface area and volume of 3D objects including: • Right cones • Right cylinders • Right prism • Right pyramids • Spheres						
3. I can convert between SI and Imperial units of measure						
4. I can use trigonomic ratios to solve problems that have a right triangle						

Backward Design

McTigue, 2010

Differentiated Activities: Opportunities to create evidence (Formative & Summative)

Everyone

Goals

Activity (product)

Quiz, unit exam, student portfolio

Activity
(conversation & observation)

Real life collaborative hands-on problem

Activity (observation)

Visual performance task

1. I can solve problems
2. I can find the surface area and volume of 3D objects
3. I can convert between SI and Imperial units of measure
4. I can use trigonometric ratios to solve problems that have a right triangle

**Student choose their
BEST evidence to justify
their learning**

Grade: 11	Subject Area(s): Literary Analysis and Writing 11 – Unit: Relationships - Families, Communities, and the Land p. 287	Planning Team: Kelley
Big Idea: The exploration of text deepens understanding of one’s identity, others, and the world.		Unit Guiding Question(s): How do our relationships with our family, friends, and community strengthen us?
Unit Goals		Activities to capture evidence of this goal
Content Goal	I know reading strategies.	Lesson 3, Literature Circles, p. 289; BLM 3 Reader Response Planning and Assessment p. 298
Content Goal	I know writing processes.	Lesson 5, Character Write, p. 291, BLM 8; Lesson 8, Writing about relationships, RAFT Templates, p. 296; Revise for summative; Lesson 7, Interview, p. 292
Curricular Competency Goal	I can use writing and design processes to plan, develop, and create engaging and meaningful texts for a variety of purposes and audiences.	Formative and summative, BLM 7 Making Connections with questions, Parts 1-4. Part 4 is summative; Lesson 7, Interview, p. 292; Unit Summative BLM Body Biography, p. 304 or BLM Concept Map, p. 305
Curricular Competency Goal	I can transform ideas and information to create original texts, using various genres, forms, structures, and styles	Lesson 5, Character Write, p. 291 BLM 8, p 307, formative; Lesson 7, Interview, p. 292; Making Connections with questions, Parts 1-4. Part 4 is summative
Curricular Competency Goal	I can demonstrate awareness of how First Peoples’ languages and text reflect First Peoples’ cultures, knowledge, histories, and worldviews.	Lessons 3, 4, Novel Study, Literature Circles, p. 289-, BLM Reader Response Planning and Assessment, p. 298-; Reader Response Questions, p. 300 -
Curricular Competency Goal	I can use the conventions of First Peoples and other Canadian spelling, syntax, and diction proficiently, and as appropriate to context.	Using feedback on drafts to edit. Summative assessments: Lesson 5, Character Write; Making connects with guiding questions, Part 4; Lesson 7, Interview, final draft; Unit summative, Body Biography, or Concept Map

Rubrics vs. Learning Maps

	deficit	deficit	Standard
goal			



THE SCRUMPTIOUS RUBRIC REFERENCE

BARELY HANGING ON



The customer wants a refund. Bread alone is not a sandwich. It's like you gave the bread and pop out just to show you were listening.

Translation: You only did the small stuff to suffice turning it in. The artwork is missing all important details and signs of understanding or perseverance.

NEEDS SOME UMPH



Your sandwich disappoints the customer. There's no flavor and not enough meat, if any at all. About the only thing great is the Citrus Drop.

Translation: You are missing important details within your artwork. Expectations are not met. Improvement is needed and lack of understanding is present.

GETS THE POINT



Your sandwich met expectations. It has flavor but nothing too exciting. You included the meat but gee, a side of chips would be nice.

Translation: Your artwork meets expectations, you went as far as the requirements expected and you used what knowledge you had to do so.

RIGHT ON!



Your sandwich went beyond expectations. You threw in some extra flavor and tomatoes and surprised the customer with a side of chips.

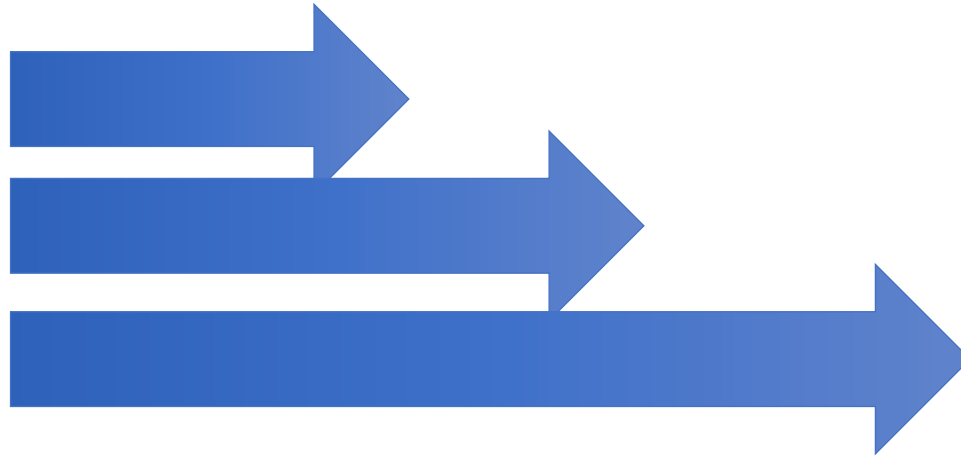
Translation: Your artwork exceeds all expectations; you used creativity, went beyond the basic requirements and showed obvious understanding.

WWW.FIVEMOOREMINUTES.COM

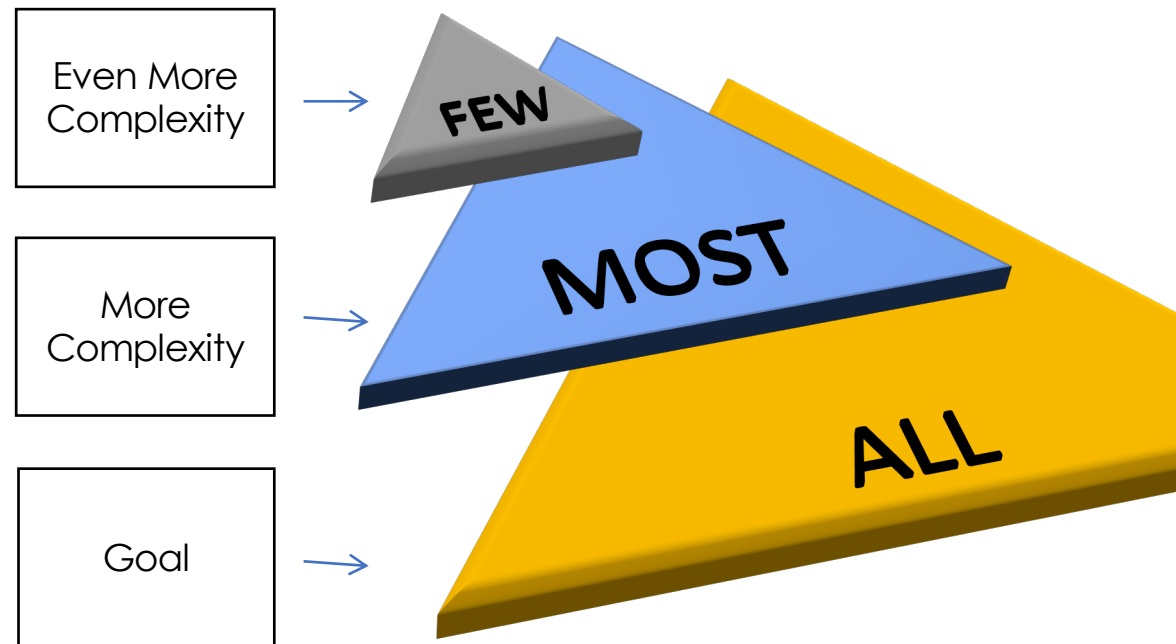
Inclusive Education: It's not more work, it's different work!

Rubrics vs. Learning Maps

	Essential	More complex	More complex
Learning Outcome			



Planning Pyramid



An Additive Continuum of Proficiency

Grade Level Learning Standard	Approaching Grade Level	Grade Level Emerging	Grade Level Developing	Grade Level Confident	Extending Grade Level
Assessment Language	Access Point (Curricular IEP Goal)	Essential Concept	More complexity	More complexity	Creating Challenge
	Incomplete IEP evaluation C/C- B/ B+ A A+				

Our Co-Planning Journey: Learning Continuums

1. Using the elaborations for each learning outcome, we constructed a **grade-level scaffold** in *student friendly language*

Learning Outcome:				
Student friendly:				
Grade Level				
Approaching	Emerging	Developing	Confident	Extending

2. We started with the **most essential concept** of the outcome and then we **added on complexity**

3. We extended the grade level scaffold to include an **access point** and **challenge point**

Our Guiding Unit Questions:

How can human society live on Mars?

- How can humans live sustainably?
- How is quality of life established through political and economic structures?

Unit Goals: Curricular Language		Student Friendly Language	
(SS) Value & Attitudes	9.1.2 appreciate the various effects of government policies on citizenship and on Canadian society (C, I, PADM)		I can understand how government policies effect citizenship and society
	9.1.3 appreciate how emerging issues impact quality of life , citizenship and identity in Canada (C, I, PADM) - (perspectives)		I can understand how issues impact quality of life and identities of citizens
	9.2.3 appreciate the impact of government decision making on quality of life (C, CC, PADM)		I can
(SS) Knowledge & Understandings	9.1.4 examine the structure of Canada's federal political system by exploring and reflecting upon the following questions and issues:		I can research political systems by:
	9.1.6 assess, critically, the impact of the Canadian Charter of Rights and Freedoms on the legislative process in Canada by exploring and reflecting upon the following questions and issues:		I can recognize how the Charter of Rights and Freedoms impacts the legislative process by:
	9.2.4 compare and contrast the principles and practices of market and mixed economies by exploring and reflecting upon the following questions and issues:		I can
(SS) Dimensions of Thinking	<i>critical thinking and creative thinking</i>		I can be a critical and creative thinker
	decision making and problem solving		I can make decisions and solve problems
	research and information		I can research and understand new information
	oral, written and visual literacy		I can show my learning in different ways

(Science) - STS	Outcome 2: Identify problems in developing technologies for space exploration , describe technologies developed for life in space, and explain the scientific principles involved	I can show what problems may exist when making technology for exploring space I can explain what technology helps life survive in space I can explain how scientific principles are used in exploring and surviving in space
	Outcome 4: Identify issues and opportunities arising from the application of space technology , identify alternatives involved, (and analyze implications)	I can identify problems and opportunities of space technology I can identify alternative technologies
(Scien)	Initiating and Planning	I can initiate and plan by asking questions and making a plan to investigate those questions
Co	Managing information	I can manage information by collecting, organizing and using information for a purpose

Unit Guiding Questions: How do humans go to and interact with space? How has technology been used to understand and explore space? How does understanding space help to understand the Earth?

Key Vocabulary:

STS Goal 1 (Curricular Language): 1. Investigate and describe ways that human understanding of Earth and space has depended on technological development

Student Friendly Language	Approaching	Emerging	Developing	Confident	Extending
I can explore and describe how humans use and need technology to understand the Earth and the space	○ I know what is in our solar system ○ I know some examples of technology to explore space ○ I can find similarities and differences of bodies in the solar system	○ I know how culture has shaped our understanding of space ○ I know how we know what is in our solar system ○ I can compare and contrast different bodies in the solar system (relationships and evidence)	○ I know how technology has helped us understand space ○ I can describe the distribution of matter in space	○ I can describe how objects in space move	○ I know how scientists predict alignment and collision of objects in space

STS Goal 2 (Curricular Language):2. Identify problems in developing technologies for space exploration, describe technologies developed for life in space, and explain the scientific principles involved

Student Friendly Language	Approaching	Emerging	Developing	Confident	Extending
I can understand and describe technologies that have been developed for exploring space and for life in space I can find problems in the technologies that have been and are being developed	- o I know that when you travel to space, we need support and technology. - o I know that you must leave earth to get to space.	- o I can identify and link technologies to the human support needed to be in space. - o I can describe the technology needed for space transport	o I can apply my knowledge and understanding of life in space to identify and solve problems that may arise because of space exploration.	o I can investigate the scientific principles related to space living and exploration	- o I know where technology is still needed. I can explain - o I can explain how space living and exploration helps with life on earth (GPS, weather).

STS Goal 3 (Curricular Language): 3. Describe and interpret the science of optical and radio telescopes, space probes and remote sensing technologies

Student Friendly Language	Approaching	Emerging	Developing	Confident	Extending
I can explain the science of some specific technologies	o I can explain what a telescope is and why it is useful	- o I can explain what optical and radio telescopes are and how they are different - o I know what kind of information radio and optical telescopes provide	o I can explain what kind of telescope to use in different situations	o I can explain the limitations of each telescope based on their location	o I can use geometry to calculate distances between objects that we see in a telescope

Backwards Design Plan: Socials 20-4

Planning Team:

Big Idea: Students will examine the effects of nationalism, ultranationalism and the pursuit of the national interest.	Our Unit Questions: What is nationalism? Why is it important? What are the effects of nationalism?
---	---

Vocabulary to know and use:			
Unit Goals: Curricular Language		Student Friendly Language	
Values &	20-4.2a appreciate that nations and states pursue the national interest	Values &	I understand why nations try and build national interest
	20-4.2b appreciate multiple perspectives related to the pursuit of the national interest		I understand why it is important to include different perspectives when building national interest
Knowledge & Understanding	20-4.2c explore a range of expressions of national interest	Knowledge & Understanding	I learn about different ways that national interest is shown or expressed
	20-4.2d explore the relationship between nationalism and the pursuit of the national interest		I can learn about how nationalism and building national interest connects to each other
	20-4.2e examine similarities and differences between nationalism and ultranationalism		I can look at how nationalism and ultranationalism are the same and different
	20-4.2f identify the effects of nationalism and ultranationalism during times of conflict		I can tell the effects of nationalism and ultranationalism during conflict
	20-4.2g examine ultranationalism as a cause of genocide		I can look at how ultranationalism can lead to genocide
	20-4.2h examine the relationship between nationalism and national self-determination		I can look at how nationalism and national self-determination connect to each other

		Social Studies 20-4		Socials 20-2		
	Evaluation	20-4 Essential (C) 20-2 Approaching (I)	20-4 Developing (B) 20-2 Approaching (I)	Essential (C)	Developing (B)	Confident (A)
Values & Attitudes	General Outcome	Students will examine the effects of the pursuit of internationalism.		Students will assess impacts of the pursuit of internationalism in contemporary global affairs.		
	Specific Outcome	20-4.3a express an interest in current events and world affairs (C, GC)		3.1 appreciate that nations and states engage in regional and global affairs for a variety of reasons (GC, C)		
	Student Friendly	I know some current events that are happening in the world right now	I can show, over time, how I am interested in ongoing current events that are happening in the world	I can understand why different nations are involved in affairs locally	I can understand different reasons why countries (nations) are involved in events (affairs) around the world	
	Specific Outcome	20-4.3b appreciate the relationships among human beings in an interdependent world (C, GC)		3.2 appreciate the impacts of nation and state involvement in regional and global affairs on individual and collective identities (GC, C)		
	Student Friendly	I know what interdependence means and examples of it in the world	I can understand the relationship between humans and an interdependent world	I can understand how a country's (nation's) involvement in global events effects their identity locally	I can understand how a country's (nation's) involvement in global events effects their identity collectively	
	Specific Outcome	20-4.3c demonstrate understanding of a global consciousness of the human condition and world affairs (C, GC)		3.3 demonstrate a global consciousness with respect to the human condition and global affairs (C, GC)		
	Student Friendly	I know what global consciousness means and can give examples	I know what human condition means and can give examples	I know how global consciousness is impacted by human condition	I know how global consciousness is impacted by world events (affairs)	

Our Unit Questions

- How are carbon, oxygen, nitrogen and phosphorus cycled in the biosphere?
- How is the flow of energy balanced in the biosphere?
- How have human activities and technological advances affected the balance of energy and matter in the biosphere?

General Learning Outcome: Students will understand the constant flow of energy through the biosphere and ecosystems.			
Unit Goals: Curricular Language		Student Friendly Language	
Knowledge	20–A1.1k Students will: explain, in general terms, the one-way flow of energy through the biosphere and how stored energy in the biosphere , as a system, is eventually “lost” as heat	Knowledge	I know how energy is used in a biosphere (stored, transferred, lost)
	20–A1.2k Students will: explain how energy in the biosphere can be perceived as a balance between both photosynthetic and chemosynthetic activities and cellular respiratory activities		I know that energy in different biospheres is balanced and cycles I know how biospheres are interconnected
	20–A1.3k Students will explain the structure of ecosystem trophic levels, using models such as food chains and food webs		I know what an ecosystem is and how it is organized
	20–A1.4k Students will explain, quantitatively, the flow of energy and the exchange of matter in aquatic and terrestrial ecosystems, using models such as pyramids of numbers, biomass and energy		I know how energy moves in an ecosystem I know how to represent the movement of energy in ecosystems using a model
STS	20–A1.1sts Students will: explain that the process of scientific investigation includes analyzing evidence and providing explanations based upon scientific theories and concepts	STS	I can connect what I am learning about biospheres to real life examples and events
Specific Outcomes for Skills	Initiating and Planning 20–A1.1s Students will: formulate questions about observed relationships and plan investigations of questions, ideas, problems, and issues	Specific Outcomes for Skills	I can initiate and plan by: - by asking questions about what I observe in my environment - by making predicting based on what I observe
	Performing and Recording 20–A1.2s Students will: conduct investigations into relationships among observable variables and use a broad range of tools and techniques to gather and record data and information perform an experiment		I can investigate and record my observations by: - using different tools and techniques to gather data - complete an experiment
	Analyzing and Interpreting 20–A1.3s Students will: analyze data and apply mathematical and conceptual models to develop and assess possible solutions		I can analyze and interpret by: - looking for patterns in my data to help me understand what is happening - connecting my data to other scenarios and contexts - coming up with some possible solutions or explanations for what is happening - organizing and displaying my data in ways that make sense to me
	Communication 20–A1.4s Students will: work collaboratively in addressing problems and apply the skills and conventions of science in communicating information and ideas and in assessing results		I can communicate my findings by: - using SI units and Sig Digs - presenting my findings so it makes sense to others (modes representation)

Learning Outcome Progressions: Bio 20-1

What do I need to know?

20–A1.1k: I know how energy is used in a biosphere (stored, transferred, lost)				
Approaching	Emerging	Developing	Confident	Extending
The sun and plants work together to form energy	I know what photosynthesis and chemosynthesis and cellular respiration is and examples of each	I know how photosynthesis, chemosynthesis and cellular respiration are connected	I know how energy is transferred by conduction, radiation, and convection, and examples	I know limitations and problems of how energy is used in existing and/or potential biospheres

20–A1.2k I know that energy in different biospheres is balanced and cycles; I know how biospheres are interconnected				
Approaching	Emerging	Developing	Confident	Extending
I know why I need the sun and plants I know why plants need me	I know the products of photosynthesis, chemosynthesis, and cellular respiration	I know that there can be balance or imbalance between photosynthesis, chemo synthesis and cellular respiration	I know the impact of imbalance in photosynthesis and chemosynthesis and cellular respiration (global warming)	I know the pros/cons to possible solutions in imbalances of photosynthesis and chemosynthesis and cellular respiration

20–A1.3k I know what an ecosystem is and how it is organized				
Approaching	Emerging	Developing	Confident	Extending
I know what a food chain is	I know trophic levels and examples in the world	I know how to show trophic levels on different models	I know how trophic levels are connected to each other	I know the impact of deleting a tropic level

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STS	20–A1.1sts Students will: explain that the process of scientific investigation includes analyzing evidence and providing explanations based upon scientific theories and concepts	STS	I can connect what I am learning about biospheres to real life examples and events
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	Analyzing and Interpreting 20–A1.3s Students will: analyze data and apply mathematical and conceptual models to develop and assess possible solutions		I can analyze and interpret by: • looking for patterns in my data to help me understand what is happening • connecting my data to other scenarios and contexts • coming up with some possible solutions or explanations for what is happening • organizing and displaying my data in ways that make sense to me
	Communication 20–A1.4s Students will: work collaboratively in addressing problems and apply the skills and conventions of science in communicating information and ideas and in assessing results		I can communicate my findings by: • using SI units and Sig Digs • presenting my findings so it makes sense to others (modes representation)

Bio 20-1: Muscles Unit Test

Targeted Outcomes for this Task:

20-D4.2k - Students will know how muscles contract and that heat is generated in the muscles through contraction.				
Approaching	Emerging	Developing	Confident	Extending
I know moving my muscles can make me warm.	I know that muscles can only contract and this produces heat. I know that muscles use actin and myosin to contract and this type of work requires ATP which releases heat.	I can explain a muscle cramp referring to how actin and myosin bind and identify the cause of the cramp.	I know the relationship between actin, the <u>myosin</u> and the tropomyosin	I understand the impact of various substances (<u>i.e. poisons</u>) and how they impact muscle contraction and function.

20- 4.3s I can analyze and interpret by:				
- looking for patterns in my data to help me understand what is happening - connecting my data to other scenarios and contexts - coming up with some possible solutions or explanations for what is happening - organizing and displaying my data in ways that make sense to me				
Approaching	Emerging	Developing	Confident	Extending
I can make a logical decision when given choices, by using my background knowledge and observations.	I can identify patterns and trends in data and explain relationships among the variables.	I can interpret and connect my data to determine possible solutions or explanations for my investigation.	I can identify and evaluate potential applications of findings to different scenarios.	evaluate designs and prototypes in terms of function, reliability, safety, efficiency, use of materials and impact on the environment

20-4.4s I can communicate my findings by:				
- using SI units and Sig Digs - presenting my findings so it makes sense to others (modes representation)				
Approaching	Emerging	Developing	Confident	Extending
I/we don't give up when things get hard I/we can participate in a task without or without a group I/we share my thinking and ideas	I/we can understand what needs to be done, I know what the task is asking me/us to do I/we can communicate findings/results clearly I/we can use unit vocabulary when responding to tasks	I/we can choose my role based on the needs of the assignment and group I/we can follow the steps of a task I/we can use of multiple sources of information.	I can work to combine input and ideas from everyone in my group and create a clear presentation I/we can use multiple forms to present our findings (visual, oral, written)	I/we can connect our findings to multiple perspectives I/can ask <u>follow</u> up questions to understand the information

Our Guiding Unit Questions:

How can human society live on Mars?

- How can humans live sustainably?
- How is quality of life established through political and economic structures?

Unit Goals: Curricular Language		Student Friendly Language	
(SS) Value & Attitudes	9.1.2 appreciate the various effects of government policies on citizenship and on Canadian society (C, I, PADM)		I can understand how government policies effect citizenship and society
	9.1.3 appreciate how emerging issues impact quality of life , citizenship and identity in Canada (C, I, PADM) - (perspectives)		I can understand how issues impact quality of life and identities of citizens
	9.2.3 appreciate the impact of government decision making on quality of life (C, CC, PADM)		I can
(SS) Knowledge & Understandings	9.1.4 examine the structure of Canada's federal political system by exploring and reflecting upon the following questions and issues:		I can research political systems by:
	9.1.6 assess, critically, the impact of the Canadian Charter of Rights and Freedoms on the legislative process in Canada by exploring and reflecting upon the following questions and issues:		I can recognize how the Charter of Rights and Freedoms impacts the legislative process by:
	9.2.4 compare and contrast the principles and practices of market and mixed economies by exploring and reflecting upon the following questions and issues:		I can
(SS) Dimensions of Thinking	<i>critical thinking and creative thinking</i>		I can be a critical and creative thinker
	decision making and problem solving		I can make decisions and solve problems
	research and information		I can research and understand new information
	oral, written and visual literacy		I can show my learning in different ways

(Science) - STS	Outcome 2: Identify problems in developing technologies for space exploration , describe technologies developed for life in space, and explain the scientific principles involved	I can show what problems may exist when making technology for exploring space I can explain what technology helps life survive in space I can explain how scientific principles are used in exploring and surviving in space
	Outcome 4: Identify issues and opportunities arising from the application of space technology , identify alternatives involved, (and analyze implications)	I can identify problems and opportunities of space technology I can identify alternative technologies
(Scien)	Initiating and Planning	I can initiate and plan by asking questions and making a plan to investigate those questions
Co	Managing information	I can manage information by collecting, organizing and using information for a purpose

AI – CHAT GPT



Our Co-Planning Journey: Learning Continuums

1. Using the elaborations for each learning outcome, we constructed a **grade-level scaffold** in *student friendly language*

Learning Outcome:				
Student friendly:				
Grade Level				
Approaching	Emerging	Developing	Confident	Extending

2. We started with the **most essential concept** of the outcome and then we **added on complexity**

3. We extended the grade level scaffold to include an **access point** and **challenge point**