Designing for DIVERSITY

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How can we inclusively plan for, teach, and assess all students in a diverse classroom?

Session 1: Determining Learning Standards using Backwards Design

Session 2: Developing asset based learning continuums

Session 3: Inclusive lesson design reflecting UDL

Session 4: Inclusive and standards based assessment

Thinking back

What are you trying?
What are you noticing?

Shelley MOORE PH.D.
2023

Evidence of Learning: Choose your Challenge

Start Here

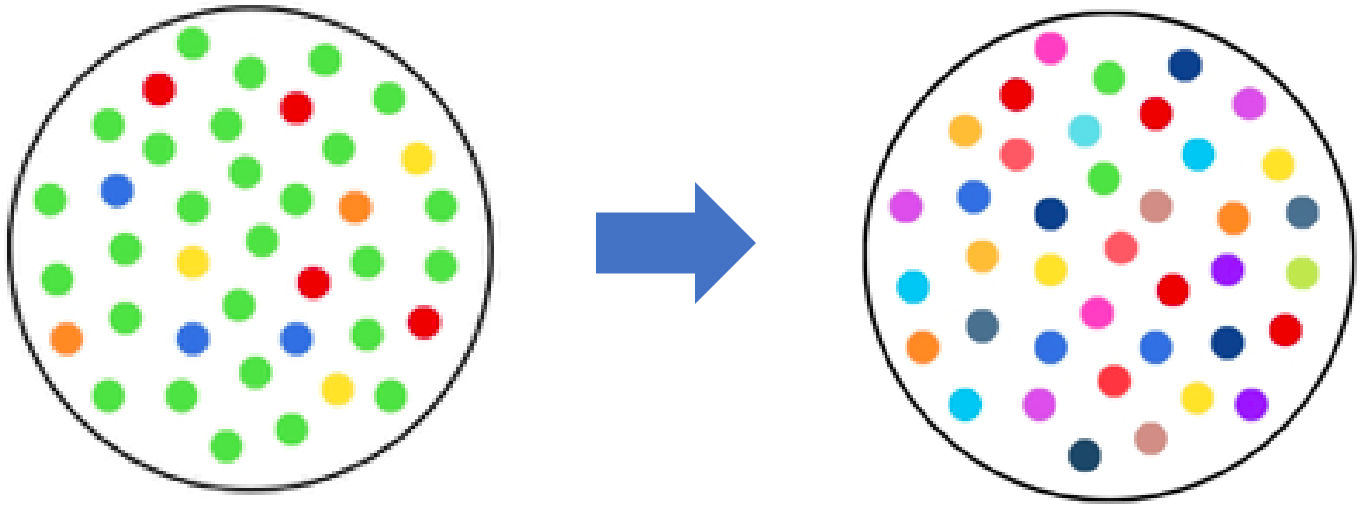
Go as far as you can in the time allotted

Series Guiding Question: How can we inclusively plan for, teach and assess students in a diverse classroom?

- **I understand** that students are diverse and that planning for them requires anticipating variability rather than homogeneity
- **I know** that Backwards Design is an inclusive planning framework, connected to UDL that identifies learning standards and sub standards that allows for task differentiation which will increase opportunities for students to engage, understand, and show evidence of their learning
- **I can** identify the grade level learning standards and sub standards in a curricular unit
- **I am** inclusive and believe that ALL students, regardless of their ability, can access grade level curriculum

Task: Backwards Design Unit Planning	**Time: Before the next session (Nov. 6, 2024)**	**Supports & Strategies**
I NEED to…	• Find one person to collaborate with and choose a science or math that unit that you will be teaching/supporting this fall	• Choice of collaborative partner/group • Choice of Science or Math area to use • Choice of task challenge On Series Dashboard • Access to session handouts • Access to examples • Access to planning templates for Science and Math
I MUST…	• Identify the learning standards/ sub standards in the unit you have chosen by looking at the learning standards and/or curricular resources • Highlight the important words that students will need to know and use in this unit	
I CAN…	• Practice translating the learning standards/ sub standards into student friendly learning statements using the stems (I know…, I can…, I understand…, or I am…)	
I COULD…	• Develop some student friendly and provoking guiding questions that can organize the learning standard/sub standards into an inquiry	
I can TRY to…	• Find the pattern for another subject area using the Backwards Design legend	

WHAT IS inclusion ?



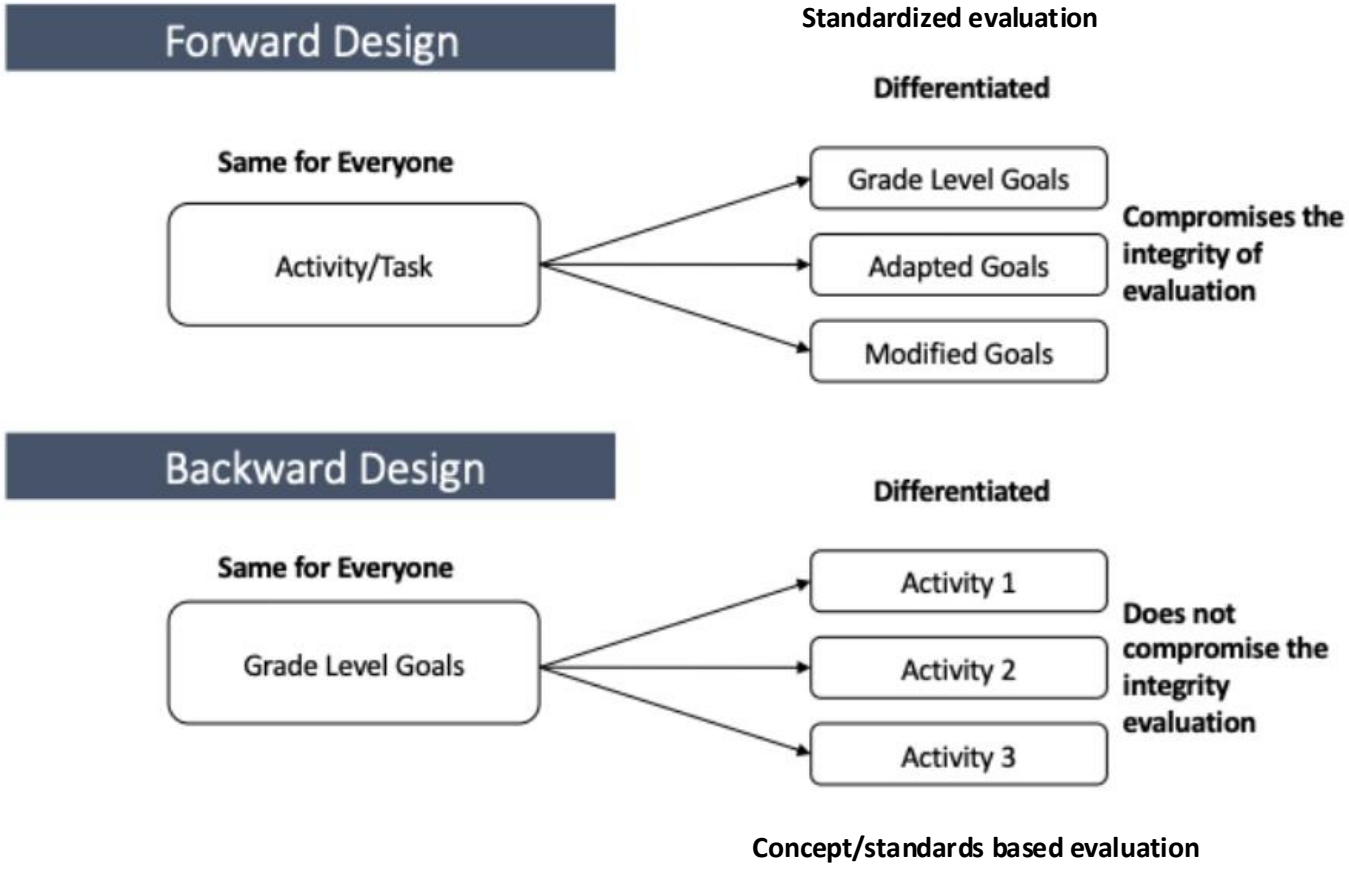
How do we include people with disabilities?

How do we teach to diversity?

Shelley MOORE PH.D.
2023

UBD: Determining the Learning Standard

Adapted from McTigue, 2010



Backwards Design

What do we need to UNDERSTAND?
Big Ideas (Learning Standard)
Students will understand that…

What could we need to also UNDERSTAND?
Skills (Cross Cutting Concepts)
Students will…

What do we need to KNOW?
Knowledge (Disciplinary Core Ideas)
Students will know that…

What do we need to DO?
Skills (S & E Practices)
Students will…

What do we need to DO?
Skills (literacy)
Students will…

What do we need to DO?
Skills (numeracy)
Students will…

Shelley Moore, 2024

New York State P-12 Science Learning Standards

MS. Structure and Properties of Matter

Students who demonstrate understanding can:

MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures. [Clarification Statement: Emphasis is on developing models of molecules that vary in complexity. Examples of simple molecules could include ammonia and methanol. Examples of extended structures could include sodium chloride or diamonds. Examples of particulate-level models could include drawings, 3D ball and stick structures, or computer representations showing different substances with different types of atoms.] [Assessment Boundary: Assessment does not include valence electrons and bonding energy, discussing the individual ions composing complex structures, or a complete depiction of all individual atoms in a complex molecule or extended structure.]

MS-PS1-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. [Clarification Statement: Emphasis is on natural resources that undergo a chemical process to form the synthetic material. Examples of new materials could include new medicine, foods, and alternative fuels.] [Assessment Boundary: Assessment is limited to the qualitative interpretation of evidence provided.]

MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and phase (state) of a substance when thermal energy is added or removed. [Clarification Statement: Emphasis is on qualitative particulate-level models of solids, liquids, and gases to show that adding or removing thermal energy increases or decreases kinetic energy of the particles until a change of phase occurs. Examples of models could include drawings and diagrams. Examples of particles could include ions, molecules, or atoms. Examples of substances could include sodium chloride, water, carbon dioxide, and helium.]

MS-PS1-7. Use evidence to illustrate that density is a property that can be used to identify samples of matter. [Clarification Statement: Emphasis should be on students measuring the masses and volumes of regular and irregular shaped objects, calculating their densities, and identifying the samples of matter.]

MS-PS1-8. Plan and conduct an investigation to demonstrate that mixtures are combinations of substances. [Clarification Statement: Emphasis should be on analyzing the physical changes that occur as mixtures are formed and/or separated. Examples of common mixtures could include salt water, oil and vinegar, and air.] [Assessment boundary: Assessment is limited to separation by evaporation, filtration and magnetism.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Developing and Using Models
Modeling in 6–8 builds on K–5 and progresses to developing, using and revising models to describe, test, and predict more abstract phenomena and design systems.
- Develop a model to predict and/or describe phenomena. (MS-PS1-1),(MS-PS1-4)

Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 6–8 builds on K–5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or design solutions.
- Plan an investigation individually and collaboratively, and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim. (MS-PS1-8)
- Collect data to produce data to serve as the basis for evidence to answer scientific questions or test design solutions under a range of conditions. (MS-PS1-8)

Engaging in Argument from Evidence
Engaging in argument from evidence in 6–8 builds from K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world.
- Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. (MS-PS1-7)

Obtaining, Evaluating, and Communicating Information
Obtaining, evaluating, and communicating information in 6–8 builds on K–5 and progresses to evaluating the merit and validity of ideas and methods.
- Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence. (MS-PS1-3)

Disciplinary Core Ideas

PS1.A: Structure and Properties of Matter
- (NYSED) Substances are made of one type of atom or combinations of different types of atoms. Individual atoms are particles and can combine to form larger particles that range in size from two to thousands of atoms. (MS-PS1-1)
- (NYSED) Each substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it. (MS-PS1-3),(MS-PS1-7) (Note: This Disciplinary Core Idea is also addressed by MS- PS1-2.)
- (NYSED) In a solid, the particles are closely spaced and vibrate in position but do not change their relative locations. In a liquid, the particles are closely spaced but are able to change their relative locations. In a gas, the particles are widely spaced except when they happen to collide and constantly change their relative locations. (MS-PS1-4)
- Solids may be formed from molecules, or they may be extended structures with repeating subunits (e.g., crystals). (MS-PS1-1)
- (NYSED) The changes of state that occur with variations in temperature and/or pressure can be described and predicted using these models of matter. (MS-PS1-4)
- (NYSED) Mixtures are physical combinations of one or more samples of matter and can be separated by physical means. (MS-PS1-8)

PS1.B: Chemical Reactions
- (NYSED) Substances react chemically in characteristic ways. In a chemical process, the atoms that make up the original substances are regrouped into different particles, and these new substances have different properties from those of the reactants. (MS-PS1-3) (Note: This Disciplinary Core Idea is also addressed by MS-PS1-2 and MS-PS1-5.)

PS3.A: Definitions of Energy
- (NYSED) The term "heat" as used in everyday language refers both to thermal energy (the motion of particles within a substance) and the transfer of that thermal energy from one object to another. In science, heat is used only for this second meaning; it refers to the energy transferred due to the temperature difference between two objects. (secondary to MS-PS1-4)
- (NYSED) Temperature is not a form of energy. Temperature is a measurement of the average kinetic energy of the particles in a sample of matter. (secondary to MS-PS1-4)

Crosscutting Concepts

Patterns
- Macroscopic patterns are related to the nature of microscopic and atomic-level structure. (MS-PS1-1),(MS-PS1-7),(MS-PS1-8)
- Graphs, charts, and images can be used to identify patterns in data. (MS-PS1-1),(MS- PS1-4)

Cause and Effect
- Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-PS1-4)

Scale, Proportion, and Quantity
- Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. (MS-PS1-1)

Structure and Function
- Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used. (MS-PS1-3)

Connections to Engineering, Technology, and Applications of Science

Interdependence of Science, Engineering, and Technology
- Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems. (MS-PS1-3)

Influence of Science, Engineering and Technology on Society and the Natural World
- The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time. (MS-PS1-3)

Connections to other DCIs in this grade-band: **MS.LS2.A** (MS-PS1-3); **MS.LS4.D** (MS-PS1-3); **MS.ESS2.C** (MS-PS1-1),(MS-PS1-4); **MS.ESS3.A** (MS-PS1-3); **MS.ESS3.C**

Articulation of DCIs across grade-bands: **5.PS1.A** (MS-PS1-1); **HS.PS1.A** (MS-PS1-1),(MS-PS1-3),(MS-PS1-4); **HS.PS1.B** (MS-PS1-4); **HS.PS3.A** (MS-PS1-4); **HS.LS2.A** (MS-PS1-3); **HS.LS4.D** (MS-PS1-3); **HS.ESS1.A** (MS-PS1-1); **HS.ESS3.A** (MS-PS1-3)

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

6-8RST1	Cite specific textual evidence to support analysis of science and technical texts, charts, graphs, diagrams, etc. Understand and follow a detailed set of directions. (MS-PS1-3)
6-8RST7	Identify and match scientific or technical information presented as text with a version of that information presented visually (e.g., in a flowchart, diagram, model, graph, or table). (MS-PS1-1),(MS-PS1-4)
6-8WHST.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source by applying discipline specific criteria used in the social sciences or sciences; and quote or paraphrase the data/accounts and conclusions of others while avoiding plagiarism and following a standard format for citation or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-PS1-3), (MS-PS1-7)

Mathematics –

MP.2	Reason abstractly and quantitatively. (MS-PS1-1), (MS-PS1-8)
MP.4	Model with mathematics. (MS-PS1-1)
NY-6.RP.4	Use ratio and rate reasoning to solve real-world and mathematical problems. (MS-PS1-1),(MS-PS1-7)
NY-6.NS.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values. Use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. (MS-PS1-4)
NY-8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. (MS-PS1-1)

*Connection boxes updated as of September 2018

Backwards Design Planning

Grade:	Subject Area: Science	Strand/Topic:
Learning Standard:		Unit Guiding Question(s):
Key Vocabulary:		

Learning Goals	Curricular Language What do Students need to Know and Do?	Student Friendly Language
Science and Engineering Practices		
Disciplinary Core Ideas		
Crosscutting Concepts		

Backwards Design Planning

Grade: 5	Subject Area: Science	Strand/Topic: Structure and Properties of Matter
Learning Standard: 5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen		**Unit Guiding Question(s):** How can I use a model to help me understand that some matter is made up of particles that are too small to see?
Content Vocabulary: model, matter, particles, idea, bulk matter		**Skills Vocabulary: create, build, change, solve a problem, observe**

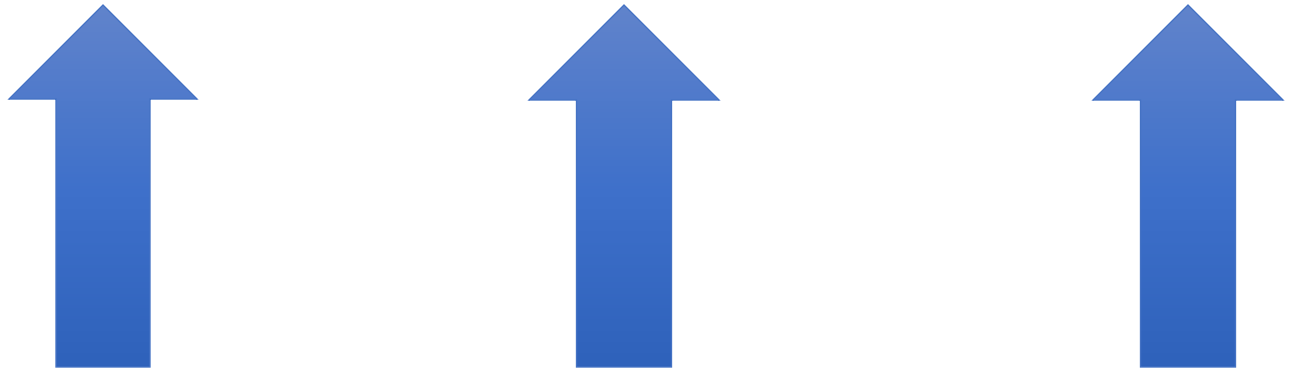
Learning Goals	Curricular Language What do Students need to Know and Do?	Student Friendly Language
Science and Engineering Practices (skills)	**Developing and Using Models** building and revising simple models and using models to represent events and design solutions. Use models to describe phenomena.	• I can create and improve a model • I can use a model to show an idea • I can use a model to solve a problem
Disciplinary Core Ideas (knowledge)	**PS1.A: Structure and Properties of Matter** 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.	• I know that matter can be broken apart into tiny particles that are too small to see • I know that even if tiny particles are too small for my eyes to see, there are other ways to observe them • I know that a model is a way to observe tiny particles too small to see • I know some examples of models that can help me observe tiny particles that are too small to see
Crosscutting Concepts (understanding)	**Scale, Proportion, and Quantity** Natural objects exist from the very small to the immensely large.	I understand that there are things that are very tiny and very large

Asset Based Learning Continuum

- Learning maps/ learning continuum/ learner progressions
- Task neutral/ standards based
- Same entry point/ multiple exit points
- Start from access (what is essential/conceptual), add on challenge
- Students can have a role in choosing their challenge
- Different from a traditional rubric

Rubrics vs. Learning Continuum

	deficit	deficit	Most complex description
Grade Level Learning Standard			



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.

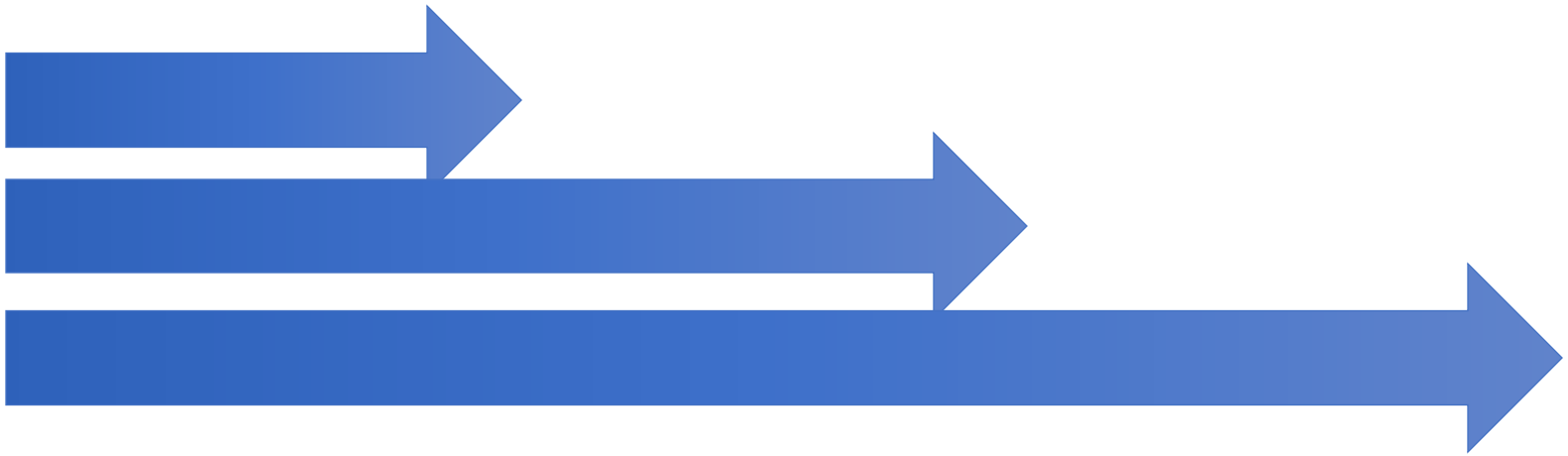
RIGHT ON!

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.

Rubrics vs. Learning Continuum

	Essential	More complex	More complex
Grade Level Learning Standard			



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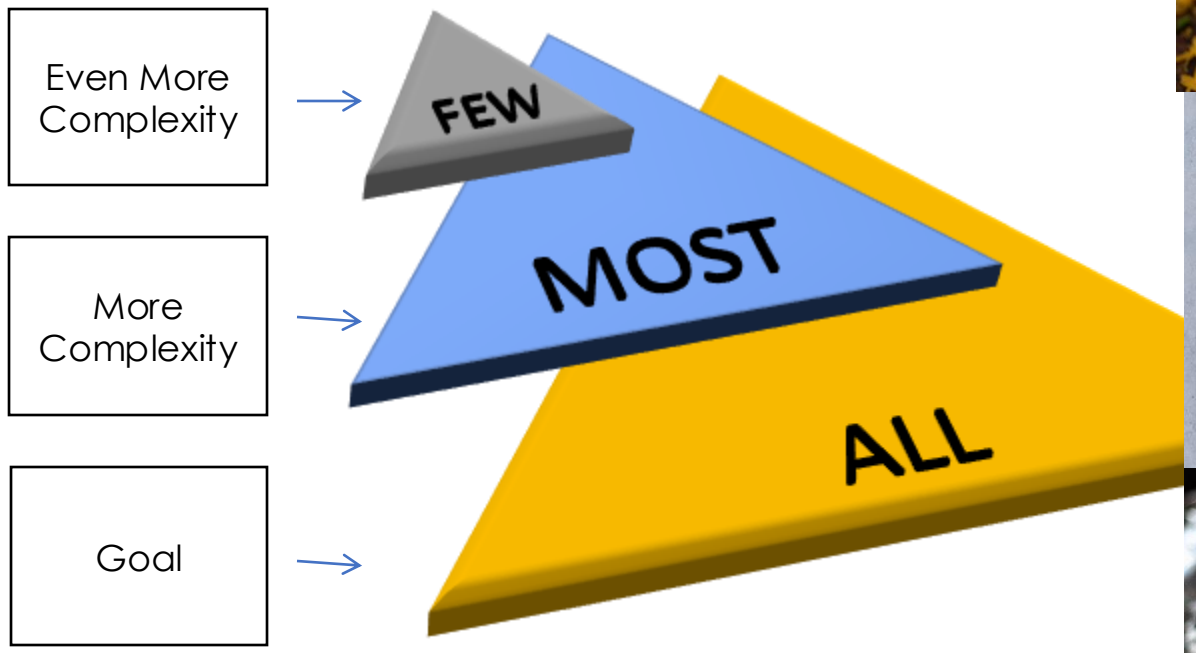
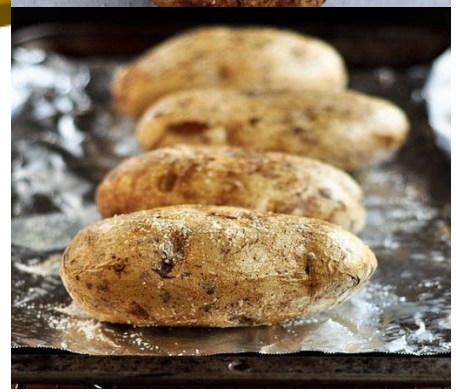
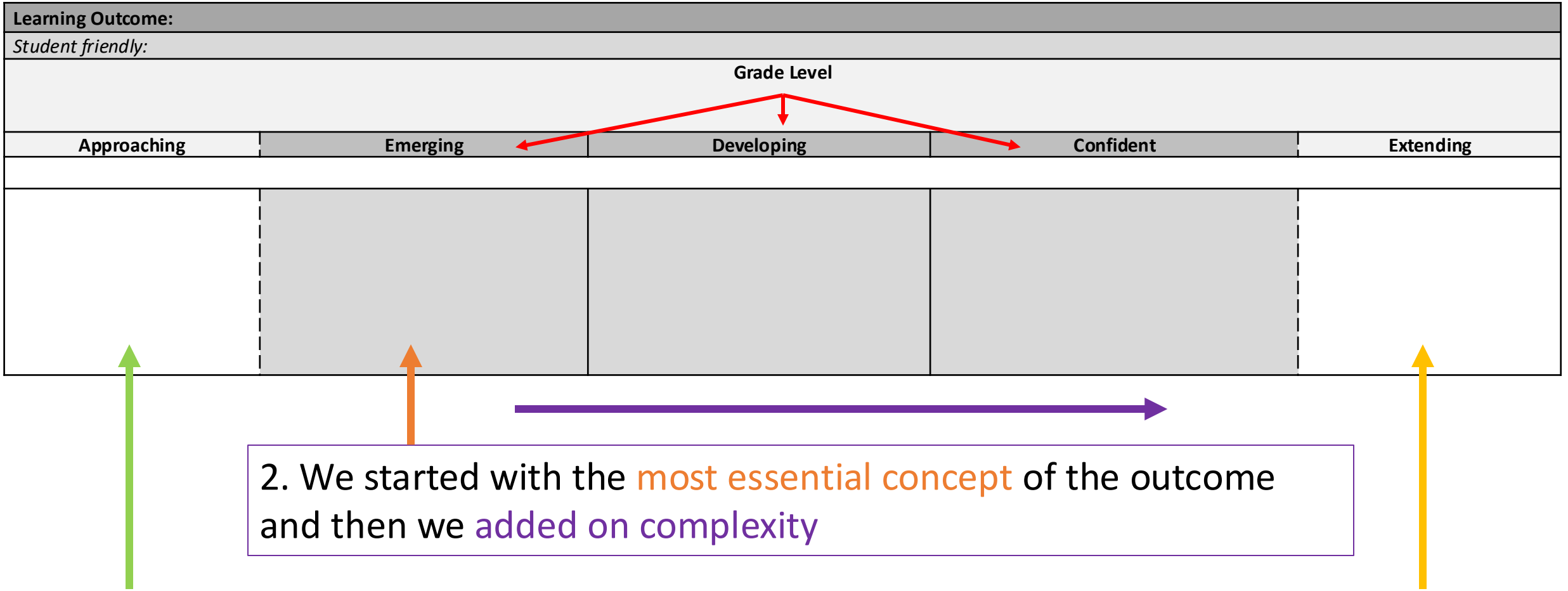
Planning Pyramid





Our Co-Planning Journey: Learning Continuums

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

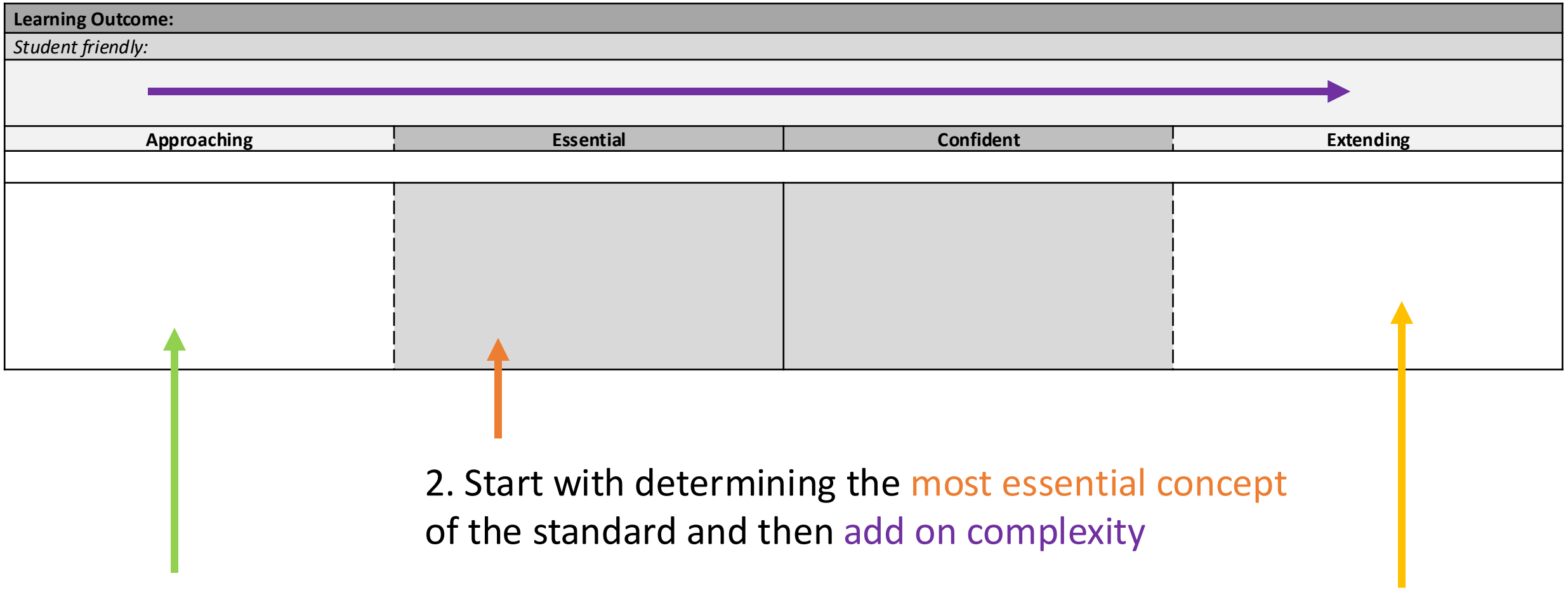


2. We started with the most essential concept of the outcome and then we added on complexity

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

Learning Continuums

1. Choose a Learning Standard and translate it into student friendly language



2. Start with determining the most essential concept of the standard and then add on complexity

3. Extend the grade level standard to include an access point and challenge point

1. Choose a Learning Standard and translate it into student friendly language

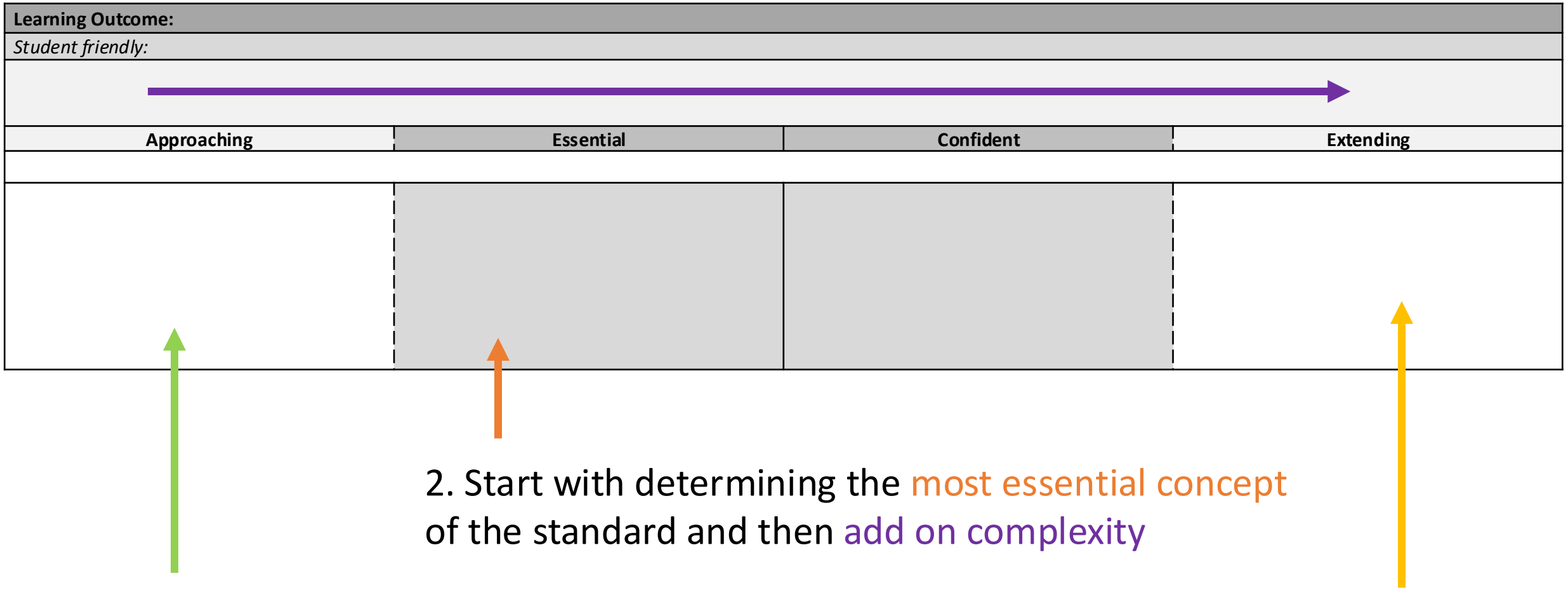
Grade: 5	Subject Area: Science	Strand/Topic: Structure and Properties of Matter
Learning Standard: 5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen		**Unit Guiding Question(s):** How do we know that something exiits if we cannot see it?
Content Vocabulary: model, matter, particles, idea, bulk matter		**Skills Vocabulary: create, build, change, solve a problem, observe**
Learning Goals	**Curricular Language** **What do Students need to Know and Do?**	**Student Friendly Language**
Science and Engineering Practices (skills)	**Developing and Using Models** building and revising simple models and using models to represent events and design solutions. Use models to describe phenomena.	• I can create and improve a model • I can use a model to show an idea • I can use a model to solve a problem
Disciplinary Core Ideas (knowledge)	**PS1.A: Structure and Properties of Matter** 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.	• I know that matter can be broken apart into tiny particles that are too small to see • I know that even if tiny particles are too small for my eyes to see, there are other ways to observe them • I know that a model is a way to observe tiny particles too small to see • I know some examples of models that can help me observe tiny particles that are too small to see
Crosscutting Concepts (understanding)	**Scale, Proportion, and Quantity** Natural objects exist from the very small to the immensely large.	• I understand that there are things that are very tiny and very large

1. Choose a Learning Standard and translate it into student friendly language

Name:	Date:
Performance Expectation: 5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen	
Unit Guiding Questions: How do we know that something exists if we cannot see it?	
Important words to know and use: model, matter, particles, idea, bulk matter, create, build, change, solve a problem, observe	
Learning Goals	**Evidence of Learning**
• I can create and improve a model • I can use a model to show an idea • I can use a model to solve a problem	
• I know that matter can be broken apart into tiny particles that are too small to see • I know that even if tiny particles are too small for my eyes to see, there are other ways to observe them • I know that a model is a way to observe tiny particles too small to see • I know some examples of models that can help me observe tiny particles that are too small to see	
• I understand that there are things that are very tiny and very large	

Learning Continuums

1. Choose a Learning Standard and translate it into student friendly language



2. Start with determining the most essential concept of the standard and then add on complexity

3. Extend the grade level standard to include an access point and challenge point

Learning Continuums: Grade Level Indicators

Science and Engineering Practices	• I can create and improve a model • I can use a model to show an idea • I can use a model to solve a problem		
Access (1)	**Essential (2)**	**Confident (3)**	**Challenge (4)**
	Planning and creating a model	Creating a model to solve a problem	

Disciplinary Core Ideas	• I know that matter can be broken apart into tiny particles that are too small to see • I know that even if tiny particles are too small for my eyes to see, there are other ways to observe them • I know that a model is a way to observe tiny particles too small to see • I know some examples of models that can help me observe tiny particles that are too small to see		
Access (1)	**Essential (2)**	**Confident (3)**	**Confident (4)**
	describing what bulk matter is and the connection between bulk matter and particles describing how particles are moving in each state of matter	describing how tiny particles interact helps us determine their properties including their state of matter describing how a model can help us observe particles moving and interacting	

Crosscutting Concepts	understand that objects in the world can be very large and very small by:		
Access (1)	**Essential (2)**	**Confident (3)**	**Challenge (4)**
	describing what microscopic and macroscopic means	describing how microscopic and microscopic are related to quantity	

Number and Operations in Base Ten — 3.NBT

A. Use place value understanding and properties of operations to perform multi-digit arithmetic.[4]

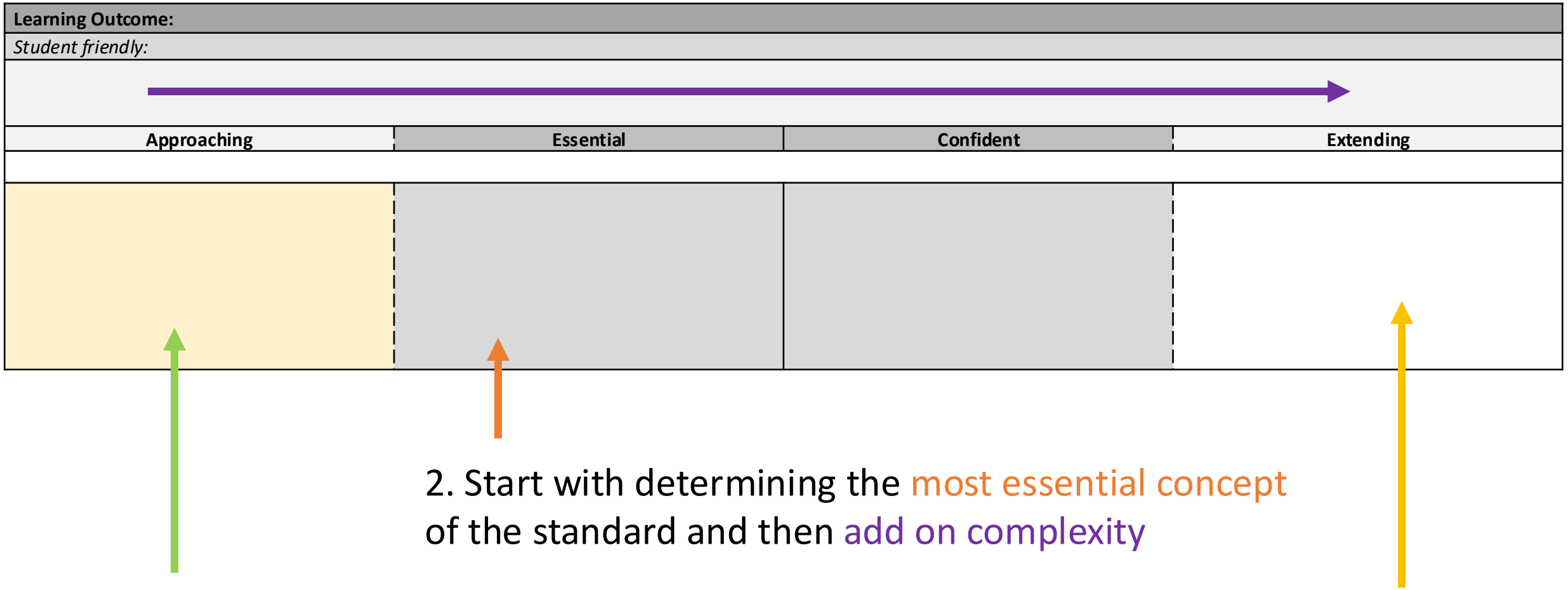
1. 3.NBT.A.1
   Use place value understanding to round whole numbers to the nearest 10 or 100.
2. 3.NBT.A.2
   Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. 3.NBT.A.3
   Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Grade: 3	Domain: Number & Operations in Base Ten	
Unit Goals	**Curricular Language** **What do Students need to Know and Do?**	**Mathematical Practices**
Standard	**Student can use place value understanding and properties of operations to perform multi digit arithmetic by:**	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.
Cluster	**Using place value understanding to round numbers to the nearest 10 or 100**	
Cluster	**Fluently add and subtract within 100 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction**	
Cluster	**Multiply one-digit whole numbers by multiples of 10 in the range (10-90 using strategies based on place value an properties of operations**	

Grade: 3	Domain: Number & Operations in Base Ten			
Unit Goals	**Curricular Language** **What do Students need to Know and Do?**			**Mathematical Practices**
Standard	**Student can use place value understanding and properties of operations to perform multi digit arithmetic by:**			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.
Cluster	**Using place value understanding to round numbers to the nearest 10 or 100**			
Cluster	**Fluently add and subtract within 100 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction**			
Cluster	**Multiply one-digit whole numbers by multiples of 10 in the range (10-90) using strategies based on place value an properties of operations**			

Learning Continuums

1. Choose a Learning Standard and translate it into student friendly language



2. Start with determining the most essential concept of the standard and then add on complexity

3. Extend the grade level standard to include an access point and challenge point

Learning Continuums: Grade Level Indicators

Science and Engineering Practices	• I can create and improve a model • I can use a model to show an idea • I can use a model to solve a problem		
Access (1)	**Essential (2)**	**Confident (3)**	**Challenge (4)**
	Planning and creating a model	Creating a model to solve a problem	

Disciplinary Core Ideas	• I know that matter can be broken apart into tiny particles that are too small to see • I know that even if tiny particles are too small for my eyes to see, there are other ways to observe them • I know that a model is a way to observe tiny particles too small to see • I know some examples of models that can help me observe tiny particles that are too small to see		
Access (1)	**Essential (2)**	**Confident (3)**	**Confident (4)**
	describing what bulk matter is and the connection between bulk matter and particles describing how particles are moving in each state of matter	describing how tiny particles interact helps us determine their properties including their state of matter describing how a model can help us observe particles moving and interacting	

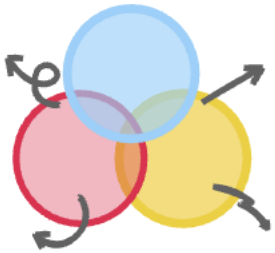
Crosscutting Concepts	understand that objects in the world can be very large and very small by:		
Access (1)	**Essential (2)**	**Confident (3)**	**Challenge (4)**
	describing what microscopic and macroscopic means	describing how microscopic and microscopic are related to quantity	

Learning Continuums: Grade Level Indicators

Science and Engineering Practices	• I can create and improve a model • I can use a model to show an idea • I can use a model to solve a problem		
Access (1)	**Essential (2)**	**Confident (3)**	**Challenge (4)**
	Planning and creating a model	Creating a model to solve a problem	

Disciplinary Core Ideas	• I know that matter can be broken apart into tiny particles that are too small to see • I know that even if tiny particles are too small for my eyes to see, there are other ways to observe them • I know that a model is a way to observe tiny particles too small to see • I know some examples of models that can help me observe tiny particles that are too small to see		
Access (1)	**Essential (2)**	**Confident (3)**	**Confident (4)**
	describing what bulk matter is and the connection between bulk matter and particles describing how particles are moving in each state of matter	describing how tiny particles interact helps us determine their properties including their state of matter describing how a model can help us observe particles moving and interacting	

Crosscutting Concepts	understand that objects in the world can be very large and very small by:		
Access (1)	**Essential (2)**	**Confident (3)**	**Challenge (4)**
	describing what microscopic and macroscopic means	describing how microscopic and microscopic are related to quantity	



Planning

Building Learning Continuums

Creating accessibility outside of the grade level

Think of the **student** who needs the most support.
What can they do by:

- Making it more familiar
- Changing the verb
- Focusing on one aspect of the goal
- Considering prior/ assumed knowledge
- Using clear language
- Breaking the goal down into parts
- Thinking about a first step in the process
- Removing details – make it a bigger idea

Bloom's Taxonomy Action Verbs

Definitions	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Bloom's Definition	Remember previously learned information.	Demonstrate an understanding of the facts.	Apply knowledge to actual situations.	Break down objects or ideas into simpler parts and find evidence to support generalizations.	Compile component ideas into a new whole or propose alternative solutions.	Make and defend judgments based on internal evidence or external criteria.
Verbs	• Arrange • Define • Describe • Duplicate • Identify • Label • List • Match • Memorize • Name • Order • Outline • Recognize • Relate • Recall • Repeat • Reproduce • Select • State	• Classify • Convert • Defend • Describe • Discuss • Distinguish • Estimate • Explain • Express • Extend • Generalized • Give example(s) • Identify • Indicate • Infer • Locate • Paraphrase • Predict • Recognize • Rewrite • Review • Select • Summarize • Translate	• Apply • Change • Choose • Compute • Demonstrate • Discover • Dramatize • Employ • Illustrate • Interpret • Manipulate • Modify • Operate • Practice • Predict • Prepare • Produce • Relate • Schedule • Show • Sketch • Solve • Use • Write	• Analyze • Appraise • Breakdown • Calculate • Categorize • Compare • Contrast • Criticize • Diagram • Differentiate • Discriminate • Distinguish • Examine • Experiment • Identify • Illustrate • Infer • Model • Outline • Point out • Question • Relate • Select • Separate • Subdivide • Test	• Arrange • Assemble • Categorize • Collect • Combine • Comply • Compose • Construct • Create • Design • Develop • Devise • Explain • Formulate • Generate • Plan • Prepare • Rearrange • Reconstruct • Relate • Reorganize • Revise • Rewrite • Set up • Summarize • Synthesize • Tell • Write	• Appraise • Argue • Assess • Attach • Choose • Compare • Conclude • Contrast • Defend • Describe • Discriminate • Estimate • Evaluate • Explain • Judge • Justify • Interpret • Relate • Predict • Rate • Select • Summarize • Support • Value

Learning Continuums: Creating Access

Science and Engineering Practices	• I can create and improve a model • I can use a model to show an idea • I can use a model to solve a problem		
Access (1)	**Essential (2)**	**Confident (3)**	**Challenge (4)**
participating in following a model	Planning and creating a model	Creating a model to solve a problem	

Disciplinary Core Ideas	• I know that matter can be broken apart into tiny particles that are too small to see • I know that even if tiny particles are too small for my eyes to see, there are other ways to observe them • I know that a model is a way to observe tiny particles too small to see • I know some examples of models that can help me observe tiny particles that are too small to see		
Access (1)	**Essential (2)**	**Confident (3)**	**Confident (4)**
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 and the connection between bulk matter and particles describing how particles are moving in each state of matter	describing how tiny particles interact helps us determine their properties including their state of matter describing how a model can help us observe particles moving and interacting	

Crosscutting Concepts	understand that objects in the world can be very large and very small by:		
Access (1)	**Essential (2)**	**Confident (3)**	**Challenge (4)**
describing that there are objects in the world that are very small and very large	describing what microscopic and macroscopic means	describing how microscopic and microscopic are related to quantity	

Grade: 3		Domain: **Number & Operations in Base Ten**			
Unit Goals	**Curricular Language What do Students need to Know and Do?**				**Mathematical Practices**
Standard	**Student can use place value understanding and properties of operations to perform multi digit arithmetic by:**				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.
Cluster		**Using place value understanding to round numbers to the nearest 10**	**Using place value understanding to round numbers to the nearest 100**		
Cluster		**Fluently add and subtract within 100 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction (using bench mark numbers (5, 10, 25)**	**Fluently add and subtract within 100 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction (using non bench mark numbers)**		
Cluster		**Multiply one-digit whole numbers by multiples of 10 in the range (10-90) using strategies based on place value an properties of operations (using bench mark numbers (2, 5, 10)**	**Multiply one-digit whole numbers by multiples of 10 in the range (10-90) using strategies based on place value an properties of operations (using non bench mark numbers)**		

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Cluster	**Multiplying through repeated addition up to 10**	**Multiply one-digit whole numbers by multiples of 10 in the range (10-90) using strategies based on place value an properties of operations (using bench mark numbers (2, 5, 10)**	**Multiply one-digit whole numbers by multiples of 10 in the range (10-90) using strategies based on place value an properties of operations (using non bench mark numbers)**		

Learning Continuums: Creating Access

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participating in following a model	Planning and creating a model	Creating a model to solve a problem	

Disciplinary Core Ideas	• I know that matter can be broken apart into tiny particles that are too small to see • I know that even if tiny particles are too small for my eyes to see, there are other ways to observe them • I know that a model is a way to observe tiny particles too small to see • I know some examples of models that can help me observe tiny particles that are too small to see		
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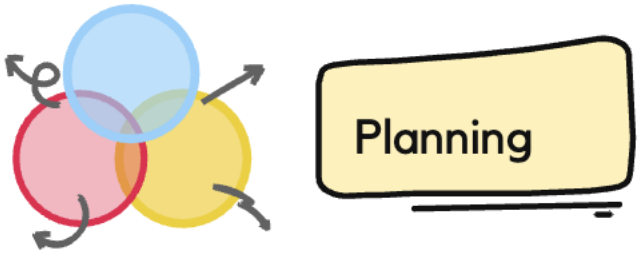
describing that there are objects in the world that are very small and very large	describing what microscopic and macroscopic means	describing how microscopic and microscopic are related to quantity	



Building Learning Continuums

- Creating challenge

Think of the student who needs the most challenge. What could they do:

- Making it apply to the world
- Change the verb – higher order thinking
- Connect to other disciplines
- A next step in the process
- Look to next grade
- Explore depth and nuance in understandings
- Expand vocabulary

Bloom's Taxonomy Action Verbs

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Learning Continuums: Creating Access

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Access (1)	**Essential (2)**	**Confident (3)**	**Challenge (4)**
participating in following a model	Planning and creating a model	Creating a model to solve a problem	Adjusting and improving a model

Disciplinary Core Ideas	• I know that matter can be broken apart into tiny particles that are too small to see • I know that even if tiny particles are too small for my eyes to see, there are other ways to observe them • I know that a model is a way to observe tiny particles too small to see • I know some examples of models that can help me observe tiny particles that are too small to see		
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Crosscutting Concepts	understand that objects in the world can be very large and very small by:		
Access (1)	**Essential (2)**	**Confident (3)**	**Confident (3)**
describing that there are objects in the world that are very small and very large	describing what microscopic and macroscopic means	describing how microscopic and microscopic are related to quantity	describing how scale is helpful when observing microscopic and macroscopic objects

Grade: 3			Domain: **Number & Operations in Base Ten**		
Unit Goals	**Curricular Language What do Students need to Know and Do?**				**Mathematical Practices**
Standard	**Student can use place value understanding and properties of operations to perform multi digit arithmetic by:**				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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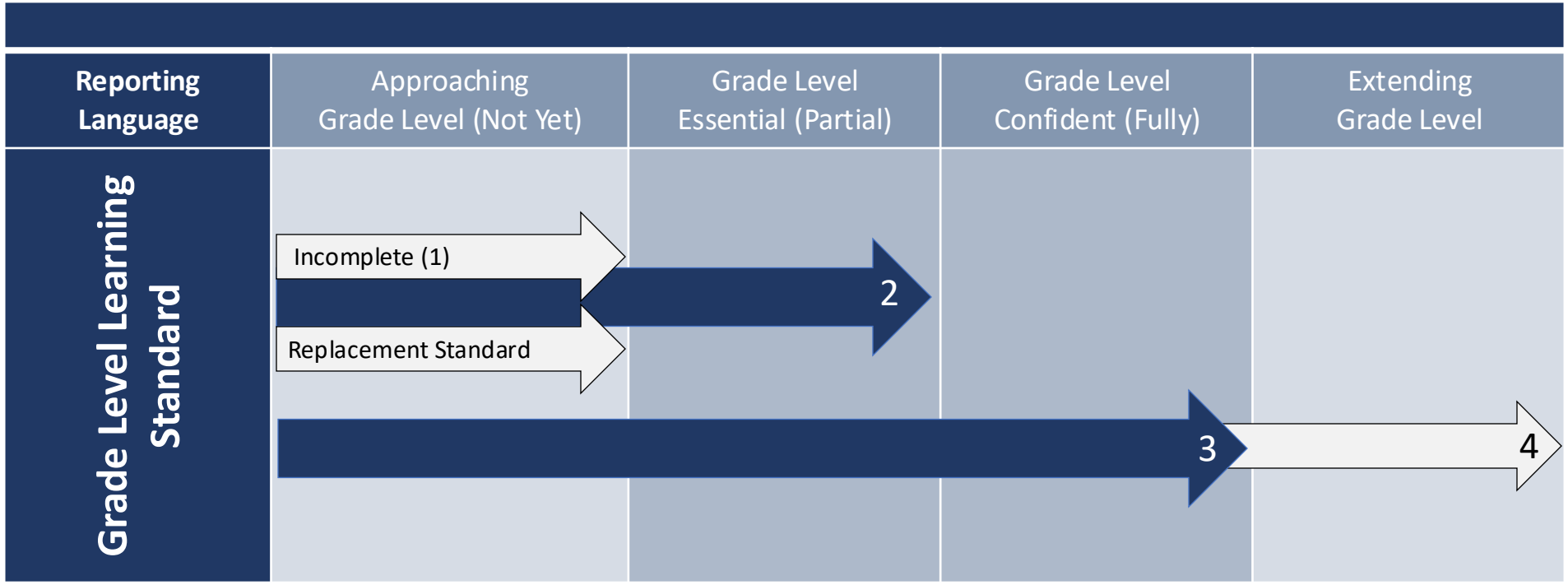
An Additive Continuum of Proficiency



S, Moore, 2024

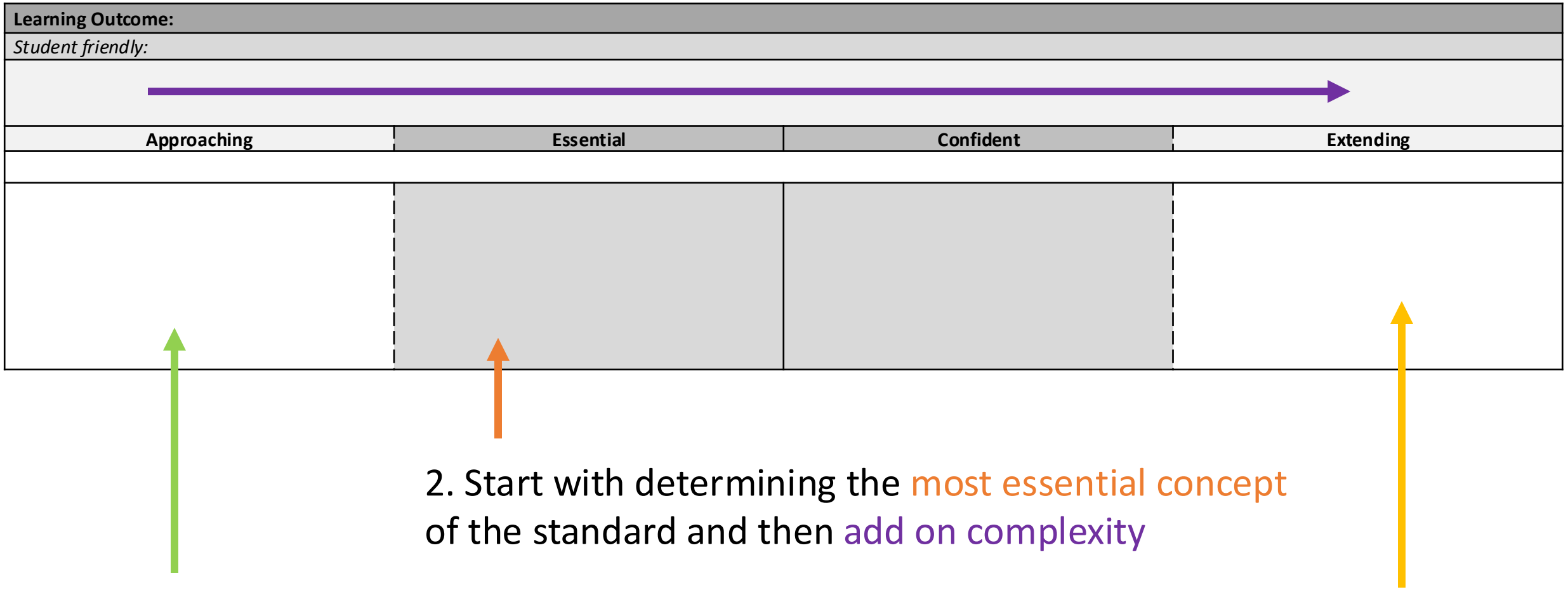
Next Generation Science Standards (NGSS)		
Subject Area: Science	**Strand: Matter and Its Interactions**	**Grade: 5**
Performance Expectation: 5-PS1-1 **Students can develop a model to describe that matter is made of particles too small to be seen**	**Guiding Unit Question:** How do we know that something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

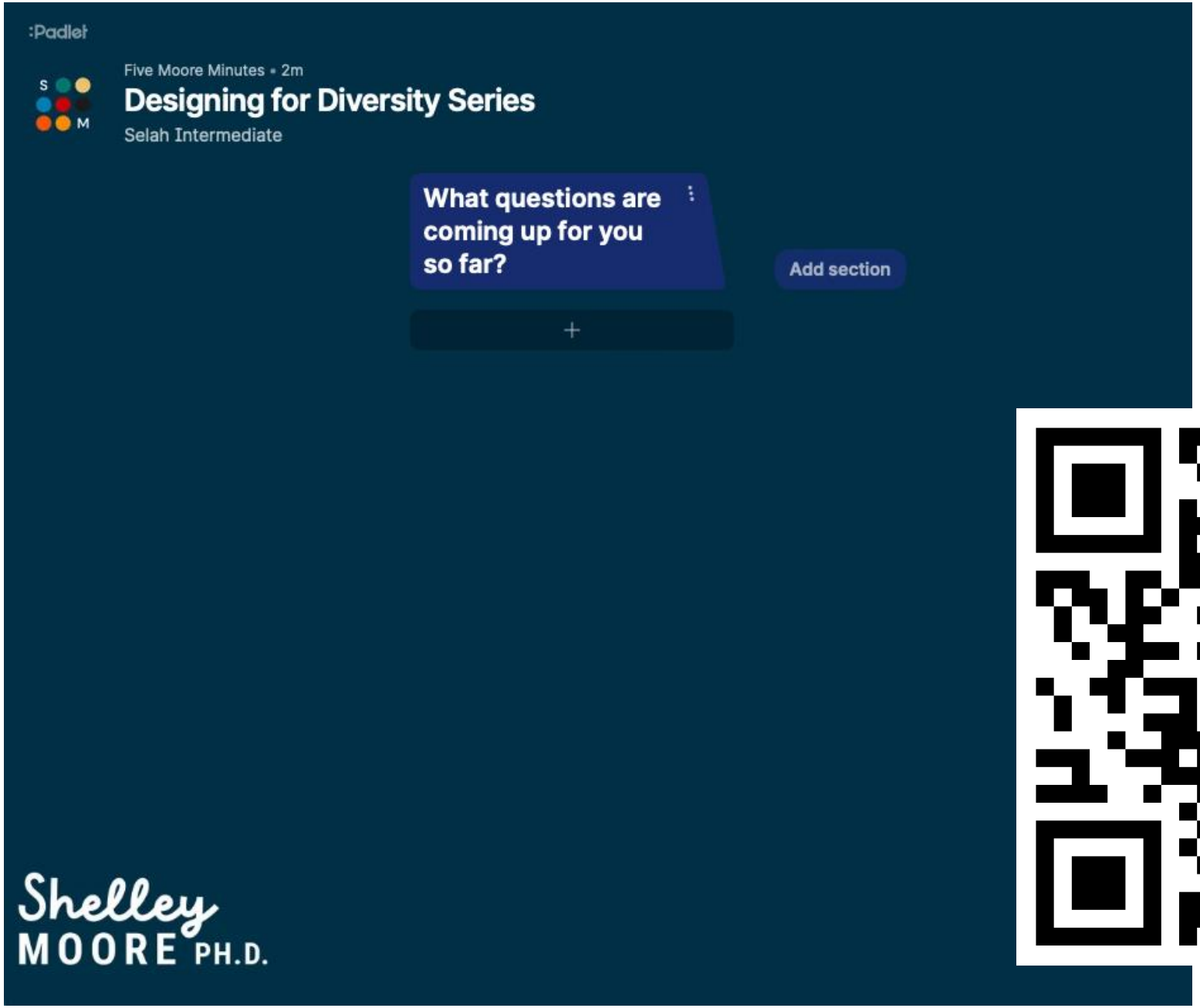
Learning Continuums

1. Choose a Learning Standard and translate it into student friendly language



2. Start with determining the most essential concept of the standard and then add on complexity

3. Extend the grade level standard to include an access point and challenge point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Five Moore Minutes • 2m
Designing for Diversity Series
Selah Intermediate
What questions are coming up for you so far?
Add section
Shelley MOORE PH.D.

What is one useful idea?

What is one thing you want to try?

What is one thing you want to think about?

What is one thing you want to learn more about?

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

Shelley MOORE PH.D.

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