In Avondale, *every student* will grow as a *thinker*, *problem solver* and *communicator* to pursue a future without limits.

THE ART AND SCIENCE OF TEACHING FOR UNDERSTANDING
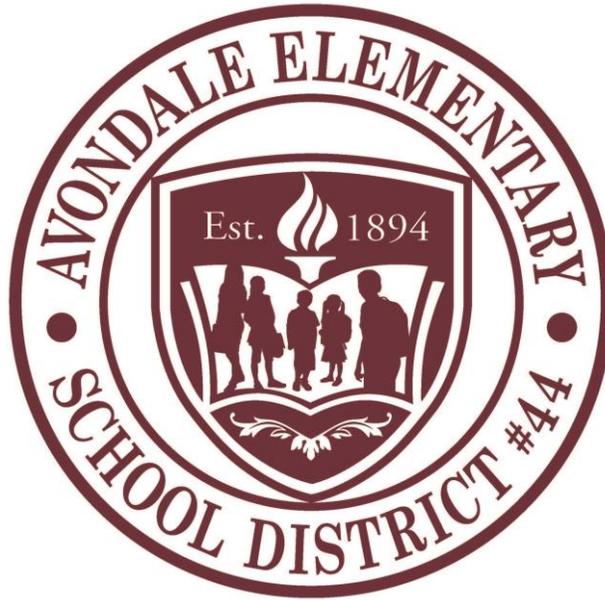
"THE FUNCTION OF EDUCATION IS TO TEACH ONE TO THINK INTENSIVELY AND TO THINK CRITICALLY, INTELLIGENCE PLUS CHARACTER – THAT IS THE GOAL OF TRUE EDUCATION."

~MARTIN LUTHER KING

CONTENT WITHOUT PURPOSE IS ONLY TRIVIA

Prepared Especially for the
Collaborative Learning Team of
AVONDALE ELEMENTARY SCHOOL DISTRICT
by Dan Mulligan, flexiblecreativity.com
October 2017

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Premise of Our Day

> Increasing students' interest and involvement in the learning process while connecting with them on an emotional level is vital to learning success. By creating a nurturing, supportive environment, educators can help every student feel confident in their abilities and empowered to take ownership of their learning.

UNDERSTANDING THE TARGET FOR EACH STUDENT TO ACHIEVE
Ensuring each student is as a thinker, problem solver, and communicator

STEP 1: UNWRAP A STANDARD: *WHAT DO STUDENTS HAVE TO KNOW AND BE ABLE TO DO?*

COPY/PASTE THE STANDARD AND ANY PERFORMANCE LEVEL DESCRIPTOR FOR PROFICIENCY
- <u>**Underline**</u> the nouns.
- *Circle or italicize the verbs.*

ESSENTIAL KNOWLEDGE/CONCEPTS	ESSENTIAL SKILLS
What Do Students Need to Know/Understand? **List the underlined nouns**	*What Do Students Need to Be Able to Do?* **List the circled (or *italicized*) verbs**

DEPTH OF KNOWLEDGE	ESSENTIAL VOCABULARY
Highlight the DOK level of the standard (*see resource*) o **DOK 1 – Recall/Reproduction:** Recall a fact, information, or procedure. Process information on a low level. o **DOK 2 – Skill/Concept:** Use information or conceptual knowledge, two or more steps. o **DOK 3 – Strategic Thinking:** Requires reasoning, developing a plan or a sequence of steps, some complexity. o **DOK 4 – Extended Thinking:** Requires an investigation, time to think and process multiple conditions of the problem. Most on-demand assessments will NOT include level 4 activities.	*What Do Students Need to Comprehend?* **List all key vocabulary**

LEARNING OBJECTIVES ALIGNED TO THE STANDARD
What 'I can' statement(s) will clarify the objective for students?

EVIDENCE OF STUDENT MASTERY?
How will we know when they know it?

SPECIFIC INSTRUCTIONAL FRAMEWORK?
What will we do to help them know/understand/can do it?
What will we do for students who still don't know it?
What will we do for students who already know it?

Evidence of Student Mastery
How will we know when they know it?

Assessment Type	DOK/Bloom Alignment	Format	Usefulness and Resulting Evidence
PERFORMANCE-BASED ASSESSMENT	**DOK 4 Extended Thinking** **Bloom F Create**	• Integrative tasks that yield specific products • Authentic assessments • Extended projects	Useful for assessing student: • Ability to organize, synthesize, and apply information and skills • Use of relevant information
SELF-ASSESSMENT OR REFLECTION	**DOK 3 Strategic Thinking & Reasoning** **Bloom E Evaluate**	• Student journals or reflection logs • Student checklists (with comments) • Group (whole class or small group) reflection activities • Daily or weekly self-evaluations (Exit ticket) • Teacher-student conferences	• Develops student awareness of strengths and areas for improvement; conscious use of thinking skills (metacognitive skills) • Shows student process, thinking, & reasoning skills • Reveals student disposition toward topic or learning • Assists teacher and students identify personal learning goals
INFORMAL ASSESSMENT	**DOK 2 Basic Skills & Concepts** **DOK 3 Strategic Thinking & Reasoning**	• Teacher observations • Teacher checklists (rubrics) • Conversations or interviews	Depending on what is discussed or observed, these informal assessments may reveal student: • Process or strategy used • Reasoning • Understanding of the topic • Ability to communicate and collaborate
OPEN TASKS & CONSTRUCTED RESPONSE	**DOK 2 Basic Skills & Concepts** **Bloom B, C Understanding Applying**	• Tasks with different possible answers • Tasks with different possible processes • Technology Enhanced Items	Useful for assessing student ability to: • Use processes; strategies • Interpret information • Apply information • Reasoning • Communicate thinking
CLOSED TASKS	**DOK 1 Recall & Reproduction** **Bloom A/ Bloom C Remembering Understanding**	• Multiple-choice items • True-False Items • Fill-in-the-Blank items • Sole (without showing steps) • Technology Enhanced Items	• Useful for assessing content-based standards. Not useful for process-based standards • Assess student knowledge of facts, skills, or concepts • Take less time, thus allowing time for open-ended or performance-based assessments

INSTRUCTIONAL FRAMEWORK FOR DEEP UNDERSTANDING
What will we do to make sure they know and can do it?

Standard(s) including Essential Knowledge, Skills and Processes

DOK Level of Standard(s) *(this is a minimum target for student engagement we can differentiate scaffolding later in the plan)*

Essential Vocabulary

Background Vocabulary – *these are words we will use to explain the new concepts –check for understanding*	New Vocabulary – *these are terms essential to understanding the new concepts*

Essential Question(s) *(this is the driving question to frame the learning process)*
What do we want students to know and be able to do?

Assessment:
What evidence will we accept that they can do it?
What will students do to provide evidence of their level of proficiency in owning the essential understandings minimally at the stated DOK level?

FRAMEWORK FOR LEARNING
What are our strategies for accomplishing this?

Pre-Assess/Create an Environment for Learning:
How will we check for and build students' background knowledge?
What will students do to connect new learning to prior knowledge?

Help Students Develop Understanding:
What will we do to assist student's as the acquire understanding?
What will students do to provide evidence of understanding?   *Differentiation?*

Help Students Extend and Apply Knowledge:
What will we do to facilitate students extending their thinking?
How will students summarize and apply knowledge?

How will we respond to those struggling and those excelling? *Differentiation?*

EXCELLENCE FOR ALL
FRAMEWORK FOR INSTRUCTIONAL PLANNING

ESSENTIAL COMPONENT	WHAT IT LOOKS LIKE
CLEAR OBJECTIVE/VOCABULARY UNPACKED/REFERENCED BY TEACHER/STUDENTS THROUGHOUT LEARNING	WHAT DO WE WANT OUR STUDENTS TO KNOW AND BE ABLE TO DO?
CREATING AN ENVIRONMENT FOR LEARNING PROVIDES STUDENTS WITH CONTEXT ALLOWS TEACHER TO BUILD/CHECK FOR BACKGROUND KNOWLEDGE	HOW WILL WE CHECK FOR READINESS AND PROVIDE A CONTEXT FOR LEARNING? WHAT WILL WE DO FOR STUDENTS WHO ALREADY KNOW IT?
HELPING STUDENTS DEVELOP UNDERSTANDING THIS IS THE TEACHING/LEARNING/DISCOVERING PHASE. MULTIPLE CHECKS FOR UNDERSTANDING ALONG THE WAY. MODELING, GUIDED PRACTICE, INDEPENDENT PRACTICE	WHAT WILL WE DO TO HELP STUDENTS UNDERSTAND THE CONTENT? WHAT WILL WE DO TO HELP STUDENTS DEVELOP SKILLS?
HELPING STUDENTS EXTEND & APPLY KNOWLEDGE STUDENT REFLECTION & DOING SOMETHING WITH WHAT THEY LEARNED.	HOW WILL WE KNOW WHEN THEY KNOW IT? WHAT WILL WE DO FOR STUDENTS WHO STILL DON'T KNOW IT?

Essential Question:
What will we do to make sure they know and can do it?

Creating an Environment for Learning

Creating an Environment for Learning resources assist with setting a purpose, checking for and building background knowledge to activate and engage student learning.

> **Essential Question:**
> HOW WILL WE CHECK FOR READINESS AND PROVIDE A CONTEXT FOR LEARNING

What I KNOW about _____!

I think _____ is:

_____
_____
_____
_____

One question I have about _____ is:

_____
_____
_____
_____

Here is a picture to show what _____ is:

Chatter Drawing

1. Close your eyes and think about _____ . Now, open your eyes and draw what you saw.

2. Now that you have learned more about _____ , draw a second picture to show what you learned.

3. In the space below, tell what you have changed about your before and after pictures. Explain why you made those changes.

MY STRATEGIES TO 'CREATE AN ENVIRONMENT FOR LEARNING'

Helping Students Develop Understanding

Helping Students Develop Understanding facilitates each student's opportunity to increase understanding and supports checking of knowledge and skill acquisition along the way.

Essential Question:

WHAT WILL WE DO TO HELP STUDENTS UNDERSTAND THE CONTENT? WHAT WILL WE DO TO HELP STUDENTS DEVELOP SKILLS?

These are _____

These are NOT _____

Which of these are _____?

Explain how to recognize a _____?

These are my examples of _____

WHAT'S MY RULE	
Theme:	
YES	NO
Rule:	

WHAT'S MY RULE	
Theme:	
YES	NO
Rule:	

MY STRATEGIES TO 'CREATE AN ENVIRONMENT FOR LEARNING'

Suggested Learning Strategy – Vocabulary

Guide students as they create a 'personal glossary' at the end of each unit in their electronic/paper interactive notebook.

Term:	Description	Picture/graphic
Bar graph	Organizes your data	1 2 3 teams

Term:	Description	Picture/graphic
context clues	how you figure out a word by reading the other words around it.	the word or word to go.
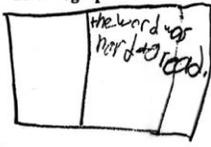
Suggested Learning Strategy – Second Questions

Guide students to think deeper about essential knowledge by asking follow-up questions that require students to justify their thinking.

It's All About the Second Question

GENIUS AT WORK

What if…?	Is _____ the reason for ____?
I wonder why _____?	Can…?
If…?	Would you rather…?
What is it that…?	What would it take to…?
When is it…?	Why is it that…?
Who could…?	Would _____ be possible if…?
How is _____ like _____?	Is it possible to…?
When is…?	Could…?
What could happen if…?	How can…?
If it were possible…?	What is your opinion about…?
Are there…?	Is it right to…?
Why is…?	I wonder when…?
How…?	I'm wondering if…?
Where did…?	How could it…?
Do you…?	Why are…?
Does it matter if…?	If it ____, could _____?
When is it…?	What can…?
Can you think of an example that is not …?	

The impact of a first question can be enriched by following with:

"How do you know?"
"What makes you say that?"

What stuck with me about developing understanding:

Student-Teacher Roles in Developing Understanding and Increasing Mathematical Reasoning

Instead of	Try…
Calling on a few raised hands during a discussion	Asking all students to engage • Ask everyone to write their response first • Use Think Pads (Think-Pair-Share) before whole class discussion
Having your voice dominate discussion time	Student led discussion • Challenge yourself NOT to narrate the entire solution to a problem • "Tell your partner what Jose suggested we do next"; "Why do you think she is correct?"; "Can someone build on that?"; "Thoughts?"; "Do you agree?"; "Disagree?"; "Why?"
You do most of the problem solving	Getting students to read and re-read • "Re-read the problem to yourself"; "What do we need to find out?"; "What did they tell us we can use?"; "What can we do to answer the question?"; "Is there another way we can solve this question?"
You summarizing the lesson	• Asking students to collaboratively summarize strategies used during the lesson. "What stuck with you today?"

Suggested Learning Strategy – Student-centered Tools

Your title goes here!

Think-Tac-Toe

DOK 2 or 3	DOK 1	DOK 2 or 3
DOK 1	DOK 2 or higher (e.g., Create a question for the team to answer and explain)	DOK 1
DOK 2 or 3	DOK 1	DOK 2 or 3

Drawing Conclusions from Historical Documents

Think-Tac-Toe

What did you already know about this topic before you read the document?	What is an image you can create in your mind after reading this document?	Tell two questions that can be answered from reading this document.
Tell what this document is mostly about. Be sure to include 3 important details.	If you wanted to learn more about this topic where would you look?	What information do you get from reading the title of the document?
Name three facts you learned from reading this document?	Find a word that you didn't know before reading the document. Tell what you think it means.	Tell your favorite part of the document? What makes it interesting to you?

Helping Students Extend and Apply Knowledge

Helping Students Extend and Apply Knowledge is more than summarizing ... it empowers each student to apply and create with their new understandings and skills.

Essential Question:

HOW WILL WE KNOW WHEN THEY KNOW IT?

Dinner Menu – Photosynthesis

Appetizer (Everyone Shares)
- Write the chemical equation for photosynthesis.

Entrée (Select One)
- Draw a picture that shows what happens during photosynthesis.
- Write two paragraphs about what happens during photosynthesis.
- Create a rap that explains what happens during photosynthesis.

Side Dishes (Select at Least Two)
- Define respiration, in writing.
- Compare photosynthesis to respiration using a Venn Diagram.
- Write a journal entry from the point of view of a green plant.
- With a partner, create and perform a skit that shows the differences between photosynthesis and respiration.

Dessert (Optional)
- Create a test to assess the teacher's knowledge of photosynthesis.

Name: _____

My GENIUS HOUR Proposal

My topic is _____

The inquiry question that I have come up with is:

_____

1. What I hope to learn is –

2. Why I think this is important to learn–

3. How I plan to share my project with the class –

4. How I will incorporate technology into the learning –

5. The materials I will need include –

6. My teacher can support me by -

STAMP of Approval
- ○ Congratulations! Your project idea has been approved!
- ○ Your project idea still needs some work. Let's discuss.

Musical/Rhythmic	Verbal/Linguistic	Logical/Mathematical	Visual/Spatial
Sing it	Read it	Make a pattern	Mind maps
Create a beat	Spell it	Chart it	Graphic organizers
Rap it	Write it	Sequence it	Video
Make a cheer	Listen to it	Create a mnemonic	Color code
Create a jingle	Tell it	Analyze it	Highlight
Hum it	Recall it	Think abstractly	Shape a word
Identify sounds	Use "you" words	Think critically	Interpret a graphic
React to sounds	Apply it	Use numbers	Read a chart
Listen to sounds	Chunk information	Prove it	Study illustrations
Connect to music	Say it	Interpret the data	Visualize it
Write a poem	Use mnemonics	Use the statistics	Make a chart
			Create a poster

Body/Kinesthetic	Intrapersonal	Interpersonal	Naturalist
Role play	Metacognition	Think-Pair-Share	Label it
Walkabout	Use self-talk	Jigsaw	Categorize it
Dance	Work independently	Cooperative grouping	Identify it
Lip sync	Solve in your own way	Drama	Form a hypothesis
Skits/charades/mimes	Understand self	Debates	Do an experiment
Construction	Journal it	Class meetings	Adapt it
Math manipulatives	Rehearse it	Role play	Construct it
Sign language	Use prior knowledge	Meeting of minds	Classify it
Sports	Connect it	Peer counseling	Investigate it
Activity centers	Have ownership	Tutors/buddies	Discern patterns
Body language		Giving feedback	
		Shared Journals	

Suggested Learning Strategy – Anchor Charts – Making Thinking Visible

- build a culture of literacy in the classroom, as teachers and students make thinking visible by recording content, strategies, processes, cues, and guidelines during the learning process.
- keeps relevant and current learning accessible to students to remind them of prior learning and to enable them to make connections as new learning happens.
- Empowers students to refer to the charts and use them as tools as they answer questions, expand ideas, or contribute to discussions and problem-solving in class.

Anchor Chart Samples:
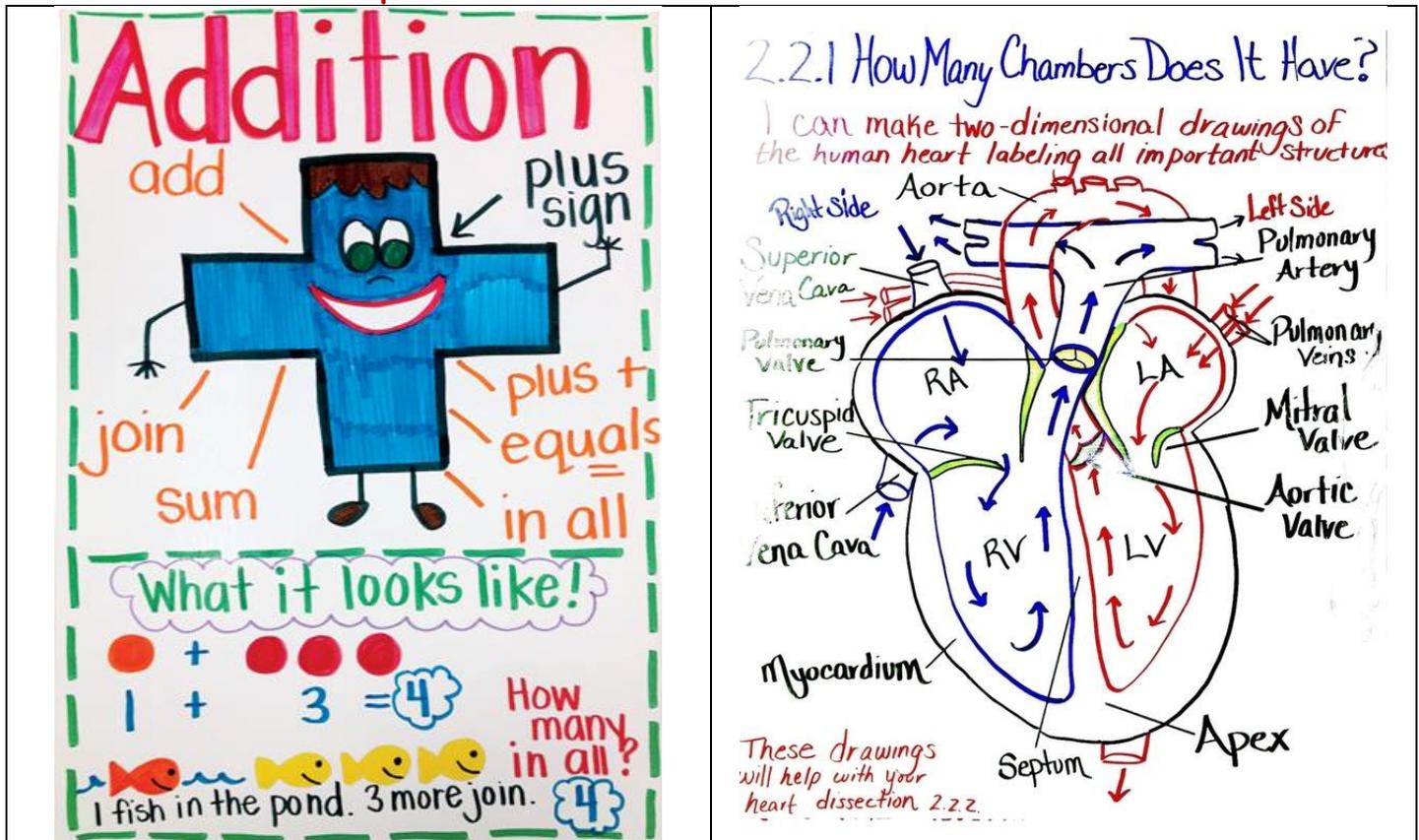
Picture of Chart can be placed in student notebooks…
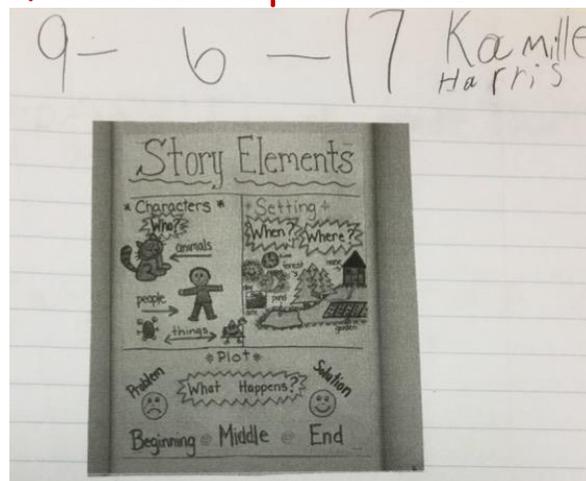
Fan the Cards

Coach and Compliment

Answer the Question

Choose a Card

Fan and Pick

1. Fan the cards.

2. Choose a card and read the question.

3. Answer the question in your own words.

4. Coach, compliment and encourage.

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START: 1. Read the question.

2. What do we know? Narrate and record the solution.

Explain it in your own words.

Cooperative Problem Solving

3. Coach your team members and check the solution.

Dan Mulligan, flexiblecreativity.com.

LEARNING THE PLANT LIFE CYCLE

Strategy: **BLIND SEQUENCING**

Dan Mulligan, flexiblecreativity.com

Instructional Structure:

"Spin the Word or Phrase"

1. Select a card from the deck.

2. Click on the arrow to start and stop spinner.

3. Read the task to your team.

4. Provide your team with clues to identify the word or phrase using the method from the spinner.

5. Pass the die to the next team member.

6. Go to Step 2.

Note: Each player is awarded 1 lifeline to ask a team member for assistance in beginning to solve the task.

Picture Perfect! Draw images to represent the word or phrase

Lights, Camera, Action! Act out a word or phrase without speaking

Hear ye! Hear ye! Provide verbal clues to explain the word or phrase

Name that Tune! Create a song, poem, cheer, or rap to describe the word or phrase

Conceptualize! Describe what the word or phrase is and what it is not

Sensory Map It! Share what the word or phrase looks like, sounds like, feels like, tastes like, or smells like

Connecting Theme:

200 POINTS

100 POINTS   100 POINTS

50 POINTS   50 POINTS   50 POINTS

"Things associated with "

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WHERE DO I BELONG?

Main Idea	Main Idea
Detail	Detail
Detail	Detail
Detail	Detail
Detail	Detail

Knowing and Formatively Assessing the Target
How do students need to express their understanding?

UNPACKING THE ESSENTIAL SKILLS OF STANDARDS PLANNING ASSESSMENT FOR LEARNING

LEVEL OF COMPLEXITY	KEY VERBS THAT MAY CLUE LEVEL		EVIDENCE OF DOK
Level 1 **Recall/Reproduction** Recall a fact, information, or procedure. Process information on a low level. **Bloom** *Know/Remember* The recall of specifics and universals, involving little more than bringing to mind the appropriate material. *Comprehend/Understand* Ability to process knowledge on a low level such that the knowledge can be reproduced or communicated without a verbatim repetition.	Arrange Calculate Cite Define Describe Draw Explain Give examples Identify Illustrate Label Locate List Match	Measure Name Perform Quote Recall Recite Record Repeat Report Select State Summarize Tabulate	• Explain simple concepts or routine procedures • Recall elements and details • Recall a fact, item or property • Conduct basic calculations • Order rational numbers • Identify a scientific representation for simple phenomena • Label locations • Describe the features of a place or people • Identify figurative language in a reading passage
Level 2 **Skill/Concept** Use information or conceptual knowledge, two or more steps **Bloom** *Apply* Uses information in another familiar situation. Executes – carries out a procedure in a familiar task Implements – uses a procedure in an unfamiliar task	Apply Calculate Categorize Classify Compare Compute Construct Convert Describe Determine Distinguish Estimate Explain Extend Extrapolate Find Formulate	Generalize Graph Identify patterns Infer Interpolate Interpret Modify Observe Organize Predict Relate Represent Show Simplify Solve Sort Use	• Solve routine multiple-step problems • Describe non-trivial patterns • Interpret information from a simple graph • Sort objects • Show relationships • Apply a concept • Organize, represent and interpret data • Use context clues to identify the meaning of unfamiliar words • Describe the cause/effect of a particular event • Predict a logical outcome • Identify patterns in events or behavior

LEVEL OF COMPLEXITY	KEY VERBS THAT MAY CLUE LEVEL		EVIDENCE OF DOK
Level 3 **Strategic Thinking** Requires reasoning, developing a plan or a sequence of steps, some complexity **Bloom** *Analyze* Breaking information into parts to explore understanding and relationships. *Evaluate* Checks/Critiques – makes judgements based on criteria and standards	Appraise Assess Cite evidence Check Compare Compile Conclude Contrast Critique Decide Defend Describe Develop Differentiate Distinguish	Examine Explain how Formulate Hypothesize Identify Infer Interpret Investigate Judge Justify Reorganize Solve Support	• Solve non-routine problems • Interpret information from a complex graph • Explain phenomena in terms of concepts • Support ideas with details and examples • Develop a scientific model for a complex situation • Formulate conclusions from experimental data • Compile information from multiple sources to address a specific topic • Develop a logical argument • Identify and then justify a solution • Identify the author's purpose and explain how • Identify the author's purpose and explain how it effects the interpretation of a reading selection
Level 4 **Extended Thinking** Requires an investigation, time to think and process multiple conditions of the problem. Most on-demand assessments will not include Level 4 activities **Bloom** *Synthesize* Putting together elements and parts to form a whole *Evaluation* Making value judgements about the method	Appraise Connect Create Critique Design Judge Justify Prove Report Synthesize		• Design and conduct an experiment that requires specifying a problem, report results/solutions • Synthesize ideas into new concepts • Critique experimental designs • Design a mathematical model to inform and solve a practical or abstract situation • Connect common themes across texts from different cultures • Synthesize information from multiple sources

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5.NF.B.7

Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. Use the relationship between multiplication and division to justify conclusions.

b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient.* Use the relationship between multiplication and division to justify conclusions (e.g., 4 ÷ (1/5) = 20 because 20 x (1/5) = 4).

c. Solve problems in real-world context involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, using a variety of representations.

ESSENTIAL KNOWLEDGE/CONCEPTS *What Do Students Need to Know/Understand?* List the underlined nouns	ESSENTIAL SKILLS *What Do Students Need to Be Able to Do?* List the circled (or *italicized*) verbs

DEPTH OF KNOWLEDGE **Highlight the DOK level of the standard (*see resource*)** - o **DOK 1 – Recall/Reproduction:** Recall a fact, information, or procedure. Process information on a low level. - o **DOK 2 – Skill/Concept:** Use information or conceptual knowledge, two or more steps. - o **DOK 3 – Strategic Thinking:** Requires reasoning, developing a plan or a sequence of steps, some complexity. - o **DOK 4 – Extended Thinking:** Requires an investigation, time to think and process multiple conditions of the problem. Most on-demand assessments will NOT include level 4 activities.	ESSENTIAL VOCABULARY ***What Do Students Need to Comprehend?*** **List all key vocabulary**

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What Stuck with Me Today