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CRIN 550

Dr. Hindman

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Assessment Creation Assignment

I. Overview of Assessment in Classroom:

This assessment is created for a first grade class at Matoaka Elementary School. This class has a diverse group of ability level students and the primary focus in this part of the year is meeting benchmarks for math and literacy in all content areas. This unit does deal with hands on science materials, labs, and projects but with everything that is accomplished, putting the ideas to words are important. This assessment will test key vocabulary terms that students should recognize how to read, how to define, to how use in different situations, and how to articulate in certain cases. Many of the Intended Learning Outcomes (ILOs) are assessment formally as well as informally through various activities so students will be able to demonstrate their knowledge in various ways. However, this assessment specifically will illustrate the importance of written language in the context of science for this matter unit. Although the science SOLs are most important in this unit, there are cross-curricular goals addressed from the English SOLs in the unit and assessment too.

II. Class Specifics:

I am placed in first grade with Lynn Walls at Matoaka Elementary School. My first grade students are a very sweet bunch of students. There are 19 students in the class (10 females and 8 males) many of whom are fairly similar in demographics on a whole. There are a couple bi-racial students as well as students who come from low-income backgrounds (one of which lives in a trailer park). We have many students receiving pull-out services and a couple being evaluated through the Child Study program. A couple students have been previously retained and many are considered performing either average or below grade level standings. The students are very willing and excited to do work on a whole with few exceptions who have minimal behavioral issues. Students who are receiving services may need simplified worksheets or additional support reading materials. One student is receiving motor skill help specifically which will be incorporated into individual lesson accommodations as well as whole class

III. Unpacking the Curriculum:

Topic: Matter

Behavioral Objectives: The students will understand the different states of matter: solid, liquid, and gas as well as communicate the relationship between them. Students will work with hands on materials to experience learning first hand to see tangible examples of each as well as seeing the process of changing states of matter.

<p align="center">Intended Learning Outcome</p> <p><u>Underline the content</u> and <u>circle the word(s)</u> that provides an indication of the cognitive level(s)</p>	<p align="center">Content</p> <p>List the explicit, implied, and conditional content (p. 58-59)</p>	<p align="center">Cognitive Level on Bloom's Taxonomy</p> <p>Provide the cognitive level(s) in terms of Bloom's Taxonomy (p. 61)</p>
<p>In order to meet this standard, it is expected that students will</p> <ul style="list-style-type: none"> • <u>Describe</u> and <u>apply</u> the term dissolve. 	<p>Explicit – apply the term dissolve</p> <p>Implied – understand the definition of dissolve, understand how to define a word, what does dissolve look like</p> <p>Conditional – none</p>	<p>Knowledge (describe) and Application (apply)</p>
<ul style="list-style-type: none"> • <u>Predict</u> and <u>describe</u> how <u>various materials (vinegar, milk, baking soda, powdered drink mix, sugar, salt, sand, oil, soil, rocks)</u> act when mixed with water. 	<p>Explicit – various materials such as vinegar, milk, baking soda, powdered drink mix, sugar, salt, sand, oil, soil, rocks act</p> <p>Implied – how to combine items, how to measure materials, how to distinguish materials, lab safety</p> <p>Conditional – when these various materials are mixed with water</p>	<p>Comprehension (predict and describe)</p>
<ul style="list-style-type: none"> • <u>Classify</u> liquids and solids into those that will <u>dissolve in water</u> and those that will <u>not</u>. <u>Use tables and/or charts</u> to <u>record</u> and display the information. 	<p>Explicit – classify liquids and solids, record the information on tables and charts</p> <p>Implied – understand how to distinguish between a solid and a liquid, how to translate seen observation into written recorded observations, how to formulate charts and/or graphs, how to distinguish when an object dissolves and when it does not, lab safety</p> <p>Conditional – non</p>	<p>Application (classify and use)</p>
<ul style="list-style-type: none"> • <u>Infer</u> that <u>some substances will dissolve more easily in hot water than in cold water</u> by <u>conducting</u> investigations <u>using water at different temperatures</u>. 	<p>Explicit – dissolving substances in hot water versus cold water</p> <p>Implied – understand how to conduct an investigation, use different water temperature in an investigation, how to make observations between the different water temperature groups, lab safety</p> <p>Conditional – conduct investigation using different water temperatures</p>	<p>Analysis (infer),</p>

NOTE: page numbers reference pages *Teacher-Made Assessment: How to Connect Curriculum, Instruction, and Student Learning* (2008) for reference

IV. Rationale for the Curriculum

- a. The assessment will be testing the first grade standards of the matter unit. The students will most likely be involved in several experiments supplemented by science journal entries to record their findings as well as use higher Bloom's Taxonomy levels to synthesize and analyze their findings. Students will make connections between lessons as well as across science units or other disciplines as a result. Out of this unit the class will create a class project for the school science fair in mid-March. The class might also complete some worksheets throughout the unit to practice written examination formats for the final unit assessment.
- b. The larger curricular aims are to build a foundational understanding in matter for these first graders. This is a topic in science that the students will revisit throughout the later grades. In second grade students are expected to learn the basic properties of each state of matter (solid, liquid, and gas), measure mass as well as volume for liquids and solids, in addition to understand the processes when objects change in phases of matter with the removal or addition of energy (VDOE Science Standards, 2010). In first grade students should be exposed to basic ideas of these concepts as well as master the first grade standards in matter listed in the chart in order to best be prepared for the later grades. Furthermore, this unit will help the next science units be more understandable: force, motion, and energy as well as renewing earth's resources. Students should start to view science as a discipline of application in their everyday life looking at familiar as well as unfamiliar objects that they discover how to observe and manipulate for scientific purposes.
- c. As a teacher you may limit yourself to giving students exposure to representations of these items without giving them the opportunity to use hands on materials. Students need to see the changes in matter as well as the differences between states of matter themselves. When students can manipulate items, they can better investigate and fully characterize the differences between solids and liquids especially as well as gases, a concept that will further develop in second grade science. This will help with their comprehension of the material which is an important cognitive level for this unit according to the specific language used in the standards. This unit may also appear as simplistic with few ILO's but as a teacher you need to make the most of your time while also best preparing your students so finding creative ways to bring in practical application is also important for this unit. This is not listed in unpacking the curriculum explicitly however application is an important Bloom's Taxonomy level for this unit. Also do not limit yourself as a teacher to the item listed in the Virginia SOLS but rather treat them as a minimum and expose students to more materials during the unit.

V. Resources used to inform the curriculum:

1. VDOE Blueprint Compare and Contrast

Table of Specifications	VDOE Test blueprint
Language is similar to describe behaviors	Language is similar to describe
Table is organized by subject by unit	Blueprint is organized by subject across

Has the ability to show cross-curricular connections between disciplines if applicable (include ILOs for other subjects or topics in table)	Demonstrates the cross-curricular connections in the assessment in the introduction as described in each section and laid out in the table
Demonstrates the cognitive level for each Intended Learning Objective (ILO)	Groups the standards into topical headings: Motion, Energy, and Matter
Separates each ILO to show number of skills required	Separates standards into subcategories and quantities per topic per grade as well as total
Isolates topics to see a unit cognitive requirements	Places topics next to adjacent grades to show connections with alphabetic correspondents that align with Learning SOLs
Uses Bloom's Taxonomy to segment essential skills and demonstrate weight of content as well as cognitive level	Uses an outline format to demonstrate the weight of each topic across grade levels (in the case of a pattern and growth between topics and grades) form of the Blueprint
Helps a teacher see how to balance topics on an assessment	Helps a teacher make larger goals for a unit based on previous knowledge as well as next level of learning needs to obtain per unit per grade
Uses essential knowledge and skills to unpack the curriculum	Uses the (SOL) to lay out topics with surrounding material as well as material
Primarily shows only one grade per topic per table to lay out a given unit	Subsumes lower grades into upper grades

VI. Table of Specifications

Table of Specifications:

Content	Bloom's Taxonomy			
	Knowledge	Comprehension	Application	Analysis
In order to meet this standard, it is expected that students will <u>Describe</u> and <u>apply</u> the term dissolve.	X L 1		X M 2, 4, 16, 17, 18	
• <u>Predict</u> and <u>describe</u> how various materials (vinegar, milk, baking soda, powdered drink mix, sugar, salt, sand, oil, soil, rocks) act when mixed with water.		X S 2, 4, 5, 7, 8, 10		
• <u>Classify</u> liquids and solids into those that will dissolve in water and those that will not. <u>Use</u> tables and/or charts to record and display the information.			X S 3, 6, 8, 9, 10, 16, 18, 19, 20	

<ul style="list-style-type: none"> • <u>Infer</u> that <u>some substances will dissolve more easily in hot water than in cold water</u> by <u>conducting</u> investigations using <u>water at different temperatures</u>. 				X M 11, 12, 13, 14,
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Indicate the emphasis of the instructional content and importance for each item. S= Strong
M=Moderate L=Low

VII. Intended Uses for Assessment

This test will be used to test several components of the science matter unit as well as inform instruction for other science units in the spring. The following purposes for the assessment will be addressed:

1. Inform teacher about student learning in relation to the matter unit
2. Gage student literacy levels in a testing environment
3. Inform the teacher what vocabulary students can recall related to the unit
4. Inform the teacher how well the students could access the curriculum
5. Discover common areas of misunderstanding
6. Discover areas of common understanding
7. Understand what test taking strategies students use
8. Understand how explicit the teacher needs to be in the next unit
9. Note which lessons were more effective or informative than others

VIII. Elements of Design

- a. Reliability: The test is reliable because the directions are explicit so students should be able to follow them easily. The wording of the test is appropriate for the grade level and ability levels of the class. Additionally the questions rely on direct material covered in the class so systematic error is unlikely to occur with this assessment. Students may mix up terms that begin with the same letter but if they are confused about a term or word they are reading then they can raise their hand and ask me to answer their questions or concerns. The students may also be confused since there are so many different types of questions as well as parts of the test but the directions are laid out before every question and I will be monitoring the class as an additional resource they are allowed to use on top of the images or displayed items.
- b. Construct Validity: This test is constructed to test key terms the students should know by the end of this unit. The format is similar to worksheets so it parallels work done in labs and other classwork. This assessment also uses similar formats to other components of their school work such as essay writing (using best practices for self-editing and making quality sentences). Also the students have practiced multiple choice questions before after watching Brain Pop videos. Students have had to use matching skills in a variety of ways as well. The format of the assessment items should be something familiar to them and accurately test

their knowledge as well as comprehension from the unit. There is a possibility that certain questions may confuse them but with the directions and myself reinforcing what to do, the students should be able to accomplish the appropriate tasks and answer the items correctly.

- c. Content Validity: This assessment accurately tests the content from the curriculum covered as well as required by the SOLs for this unit. Many of the questions are pulled from class worksheets or labs that the students participated in during the unit. The vocabulary definitions are taken nearly word-for-word from lessons covered.
- d. Rationale for test items: Most of the items are self-created to personalize the material as well as the content for my intended class of students. The few that were chosen from peer sources incorporated ideas and assessment strategies that I thought would also be appropriate as well as beneficial for my class of students. A test of this capacity can seem a bit lengthy for students at a first grade level so mixing it up and including various ways for students is easier for students to accomplish and remain engaged.
- e. Description of scoring and grading: The essay and coloring test item is the only area for flexible grading which is included below for the essay question. Every other test item only has one correct answer.

IX. Assessment and Answer Key

Name: _____

Matter Test ☺

Directions: Circle the best answer for each question.

1. A word that means to become absorbed in a liquid is _____?

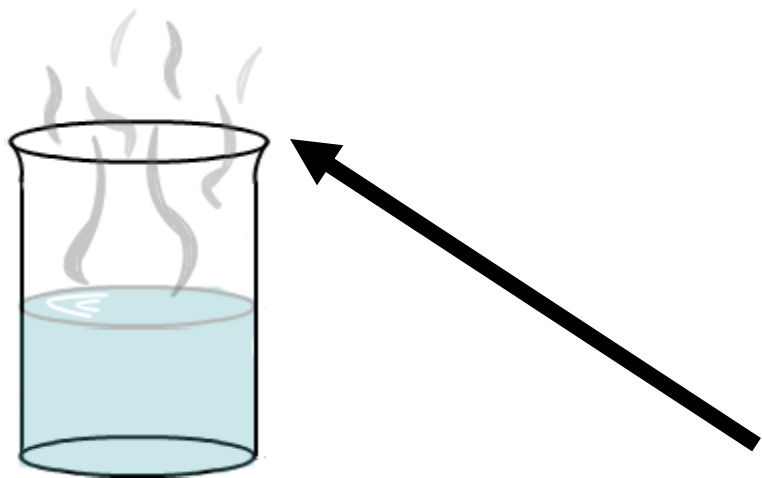
- a. Drip
- b. Dissolve
- c. Mix
- d. Separate

2. Which dissolves best in water? (go to the front table to look at the labelled items on the table)

- a. Milk
- b. Salt
- c. Oil
- d. Vinegar

3. Look at the picture. Which state of matter is it?

- a. Solid
- b. Liquid
- c. Gas
- d. None



Directions: For the following sentences, circle YES if it is true or choose NO if it is false.

4. When something dissolves in water, it means that you can see the particles in the water.

YES or NO

5. Oil dissolves in water.

YES or NO

6. In the class labs **water** was the primary solvent we used.

YES or NO

7. When a rock goes into water it _____.

a. Dissolves

b. Settles

c. Floats



d. Jumps out

8. Place the correct items in one column or the other: baking soda, sand, sugar, salt, oil, powdered drink mix, pebbles

Will dissolve in water	Will NOT dissolve in water

Directions: Look at the chart and circle the best option to describe the results.

9. The cup in **column A** has _____ water to the cup in **column B**
- a. More
 - b. Less
 - c. Equal to

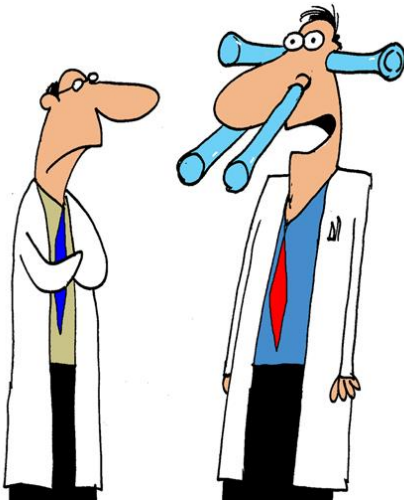
Column A	Column B
<p data-bbox="402 737 597 779">Almost full</p> 	<p data-bbox="1036 737 1198 779">No water</p> 

10. What happens when sugar is mixed into water?
- a. I can see all the sugar particles in the water.
 - b. I can see some of the sugar particles in the water.
 - c. I cannot see any of the sugar particles in the water
 - d. There are no particles in water

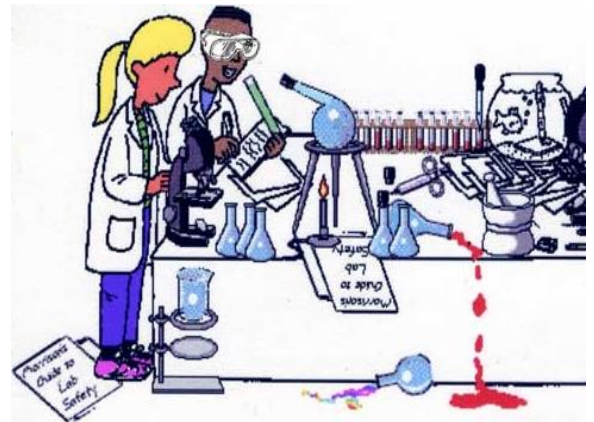
11. Pick picture shows a safe action. Then circle the answer you think shows the safe action. Think of our "Lab Rules" from class.



a.
(Team A, 2010)



b.
(King, Jerry 2010)



c.
(Hoskins, 2012)



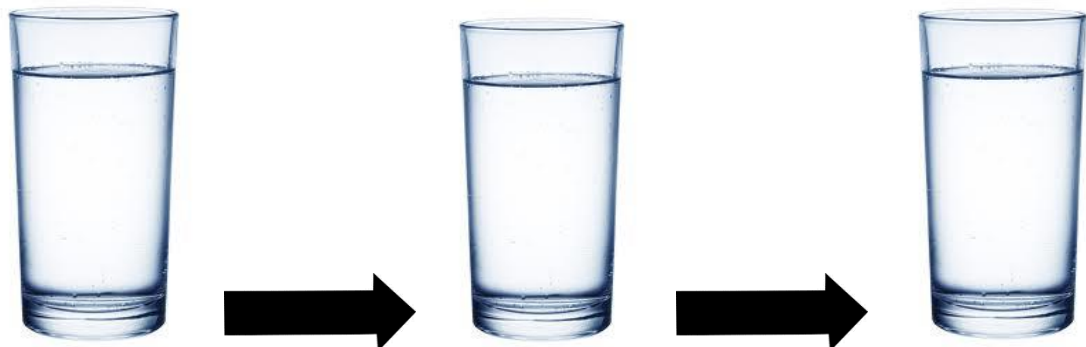
d.
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Directions: **MATCHING**- draw an arrow to the correct **water temperature**

- | | | |
|-----|------------------------------------|---------------|
| 12. | Dissolves salt slowly | a. Cold water |
| 13. | Dissolves salt at an average speed | b. Hot water |
| 14. | Dissolves salt quickly | c. Warm water |

Directions: **Short Answer**- write a couple sentences for each question. Please use complete sentences with all of the correct parts like you know how to do 😊

15. In the cups of water below, use an **orange** crayon to **draw** a picture of how orange powdered drink mix **dissolves** when it is stirred into water.



Draw: Adding drink mix

Draw: Stirring drink mix

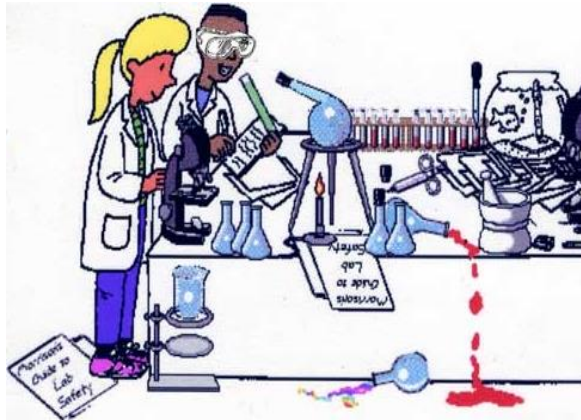
Draw: After stirred

(Hint: What do you use to stir?)

(Barr, 2014)

9. A: More

10. C: I cannot see any of the sugar particles in the water



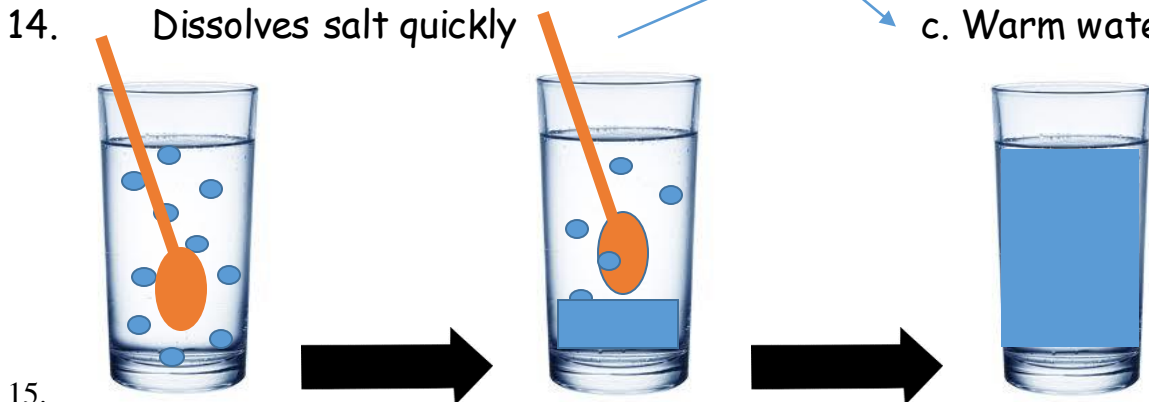
11.C:

(Hoskins, 2012)

12. Dissolves salt slowly → a. Cold water

13. Dissolves salt at an average speed → b. Hot water

14. Dissolves salt quickly → c. Warm water



15.

Draw: Adding drink mix

Draw: Stirring drink mix

Draw: After stirred

{show some sort of process happening}

Essay:

ILO: Infer that some substances will dissolve more easily in hot water than in cold water. Also classify liquids and solids into those that will dissolve in water and those that will not.

Supply response Item: What can make something dissolve faster? Why?

[Verbally tell the students to explain the differences using complete, grammatically correct sentences to complete the answer].

High response answer: Some solids can dissolve **faster than liquids**.

Temperature like **hot water** can also make a solid dissolve faster. Salt dissolves very fast in hot water because it is a good solute. **It dissolves so well that you cannot see the particles after you mix it.**

Rationale: Qualifying that some can dissolve faster makes the first statement a true and fair statement since not all liquids dissolve. Then the answer talks about the role temperature plays as well as the temperature which often speeds up the time it takes for a solute to dissolve. Then the answer gives an example of a solid which dissolves well, the rationale, as well as using an advanced term from class lectures. Classroom discussions briefly went over solvent, solute, and solutions which is an advanced idea and this answer acknowledged that information from class.

Acceptable response answer: Solids can **disolve faster than licids**. Hot water can make sugar disolve faster. **Because the parts move away.**

Rationale: These statements do hold true however they are listed in absolutes which is not a best practice or way to express an idea in science according to the Nature of Science (NOS) standards (source). This answer does include key terms and temperature having a role in dissolving as well as a direct example of a solid (sugar). There is rationale included although the sentence is not written in the most desired form. There are some spelling errors which is acceptable for the grade and depending on the writing level of the student.

Rubric:

Activity	😊	😐	
Including strong beginning sentence	The student provides a complete sentence with little to no errors which strongly introduces the answer.	The student provides a complete or mostly complete first sentence which fairly introduces the answer. There are little to no errors in the sentence.	The student provides a complete answer but not strongly introduced. There may be some errors in the answer.
Including at least one example of something that is a good solute	The student provides one or more correct examples of good solutes.	The student provides one or more examples, of which one at least is correct examples of good solutes.	The student either provides no example or the example is an incorrect example.
Demonstrates applied understanding of the term dissolve	The student understands the term dissolve and applies his/her knowledge well	The student has a fair understanding of the term dissolve and applies some correct knowledge in the answer.	The student may not demonstrate understanding of dissolve and may not provide support to answer.
Includes the role of temperature of water in the answer	The student includes the role of water temperature properly in relation to solutes fully.	The student includes the role of water temperature but it may be incorrectly or not fully explained.	The student may not include the role of water temperature with a partially correct explanation.
Provides rationale for the example	The student fully explains the reasoning discussed in class for certain items to dissolve faster than others.	The student may partially explain the reasoning discussed in class for certain items to dissolve faster than others.	The student may not provide reasoning discussed in class for certain items to dissolve faster than others.
Overall grammar: (spelling, capitalization, punctuation)	The student includes 2 or less grammatical errors.	The student includes 2-4 or less grammatical errors.	The student includes more than 4 grammatical errors.
Sentence structure	The student uses complete sentences throughout the answer.	The student primarily uses complete sentences throughout the answer.	The student may not use complete sentences throughout the answer.
Key vocabulary	The student incorporates key vocabulary terms appropriately in the answer.	The student includes key vocabulary terms however, some of them may be used incorrectly.	The student may not use key vocabulary terms or use them incorrectly.