

AM I BIG AND BLUE OR SMALL AND YELLOW? (MODIFIED FOR ADEED)

INSTRUCTIONS



Science Concept:

Objects can be identified and classified according to physical properties.

Objectives:

The student will:

- identify soil samples according to physical properties;
- observe and classify soil samples; and
- write sentences about matter, and draw an illustration with a title and labels.

GLEs Addressed:

Science

[3] SB1.1 The student demonstrates an understanding of the structure and properties of matter by classifying matter according to physical properties (i.e., color, size, shape, weight, texture, flexibility).

[3] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.

Writing

[3] W1.2.2 The student writes for a variety of purposes and audiences by using expressive language when responding to literature or producing text (e.g., journals, pictures supported by text or poetry).

Vocabulary:

classify – to arrange or organize by property or category

matter – the substance or substances of which any physical object consists or is composed

physical property – any attribute or characteristic that describes a substance, such as color, size, shape, and texture

sort – to arrange according to sort, kind, or class; separate into sorts; classify

texture – the visual and especially the tactile quality of a surface

Venn diagram – a diagram that uses circles to represent sets and their relationships

Materials:

- String, 3 pieces, each at least 25 feet long
- Attribute blocks (one set per pair)
- Pencils (one per student)
- Crayons – red, yellow, and blue (one of each color per pair)
- Junk boxes containing a wide variety of small objects (one per group)
- Soil samples, from at least four different locations, with varied soil
- Paper plates, large sized (at least 25)
- Science journals (one per student)
- Chart paper
- Markers
- Collecting bag such as a plastic grocery bag (one per group)
- STUDENT WORKSHEET: “Blank Venn Diagram”
- STUDENT WORKSHEET: “Labeled Venn Diagram”
- STUDENT WORKSHEET: “Recording Sheet”

Activity Preparation:

Lay two pieces of string on the carpet in the shape of two overlapping circles to form a Venn diagram with room for students to stand inside.

Activity Procedure:

Please refer to the assessment task and scoring rubric located at the end of these instructions. Discuss the assessment descriptors with the class before teaching this lesson.

Gear Up

Process Skills: classifying and communicating

1. Do a people sort. Call out various physical properties of students, such as colors they are wearing, hair color, eye color, clothing items, or height. Ask students to stand in the appropriate section of the Venn diagram circles on the floor. Start with easy categories, such as girls and boys (no overlapping circles). Using various attributes, continue to sort students into groups. Make sure to set up comparisons that will place some students in the overlapping section (i.e., girls and blue-eyed students). Extend the activity by adding a third circle. Observe students as they participate.

Explore

Process Skills: classifying, communicating, describing, and making generalizations

2. Review vocabulary words.
3. Divide students into pairs. Give each pair of students a set of attribute blocks. Spend five minutes letting students play and explore with their blocks, sorting into various groups. Suggest that students sort by color, then by shape, then by size.
4. Hand out STUDENT WORKSHEET: "Labeled Venn Diagram" to each pair of students. Working together, ask students to place blocks in the appropriate parts of the circles. Once they are sure the blocks are in the right place, students should trace and color the shapes. Hand out a STUDENT WORKSHEET: "Blank Venn Diagram" to each pair of students. Ask students to explore alternative groupings and combinations.
5. Combine two pairs of students and let groups of four explore a junk box. Distribute STUDENT WORKSHEET: "Recording Sheet." Ask groups to see how many different ways they can sort the items using the physical properties of shape, color, size, and texture. As a group, students should record their classifications on the recording sheet provided.

Generalize

Process Skills: classifying, communicating, and making generalizations

6. Ask students the following questions and discuss as a class:
 - a. What are some ways your group classified the objects in your junk boxes by physical properties?
 - b. What items could be classified using more than one physical property? Describe the physical properties of those items.
 - c. How do Venn diagrams help you understand how to classify objects by physical properties?
 - d. Did your Venn diagram categories always have items in them? Why or why not?
 - e. List some other things in the world that can be classified by physical properties.

Apply

Process Skills: classifying and communicating

7. Divide the class into small groups. Go on a walk outside. Ask each group to collect a bag of objects from nature. Back in the classroom, each group should sort and classify their objects according to physical properties. Ask students to place the objects in the two-circle Venn diagram template to show their thinking about how they classified. Ask students how the samples are alike and how they are different.

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Extension Idea:

As an extra challenge, ask students to classify items found during the outside walk using a three-circle Venn diagram.

Answers:

STUDENT WORKSHEET: "Recording Sheet"
Answers will vary.

Source:

Fact monster. (2009). Retrieved June 25, 2009, from <http://dictionary.factmonster.com/>



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RUBRIC

Assessment Task:

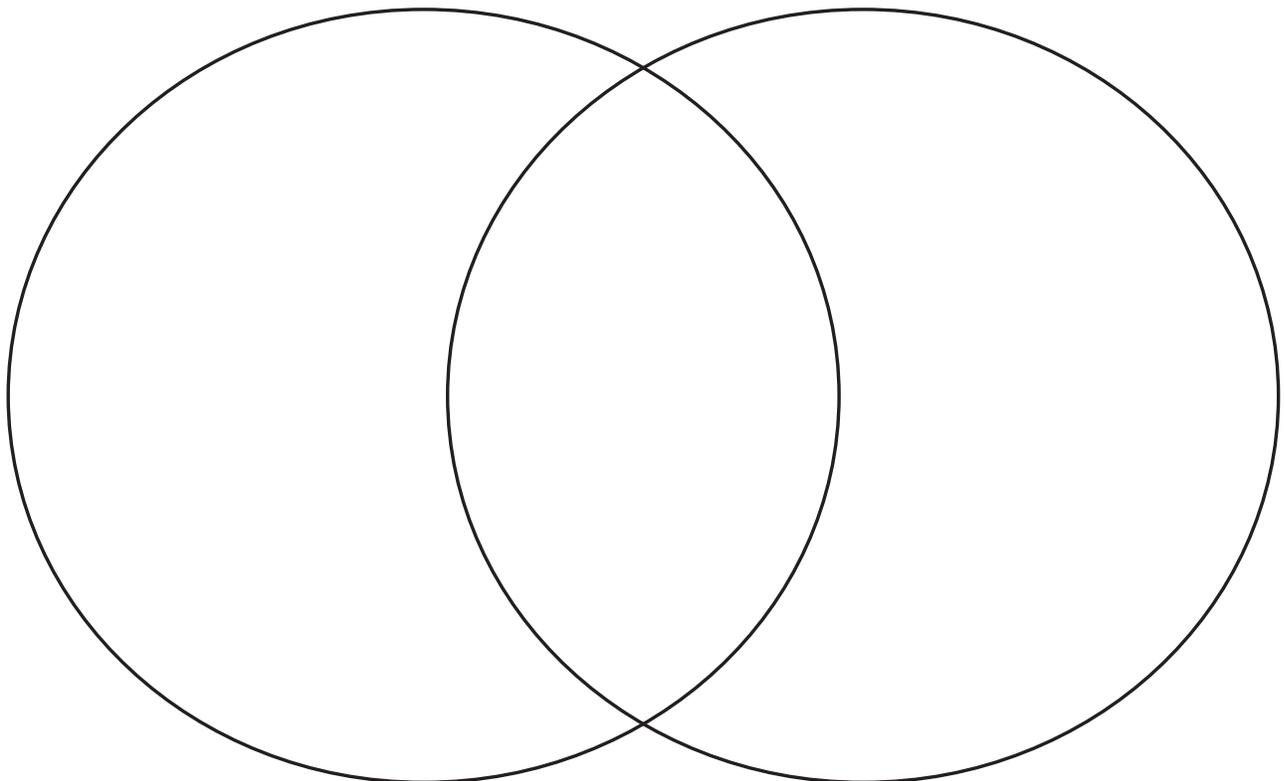
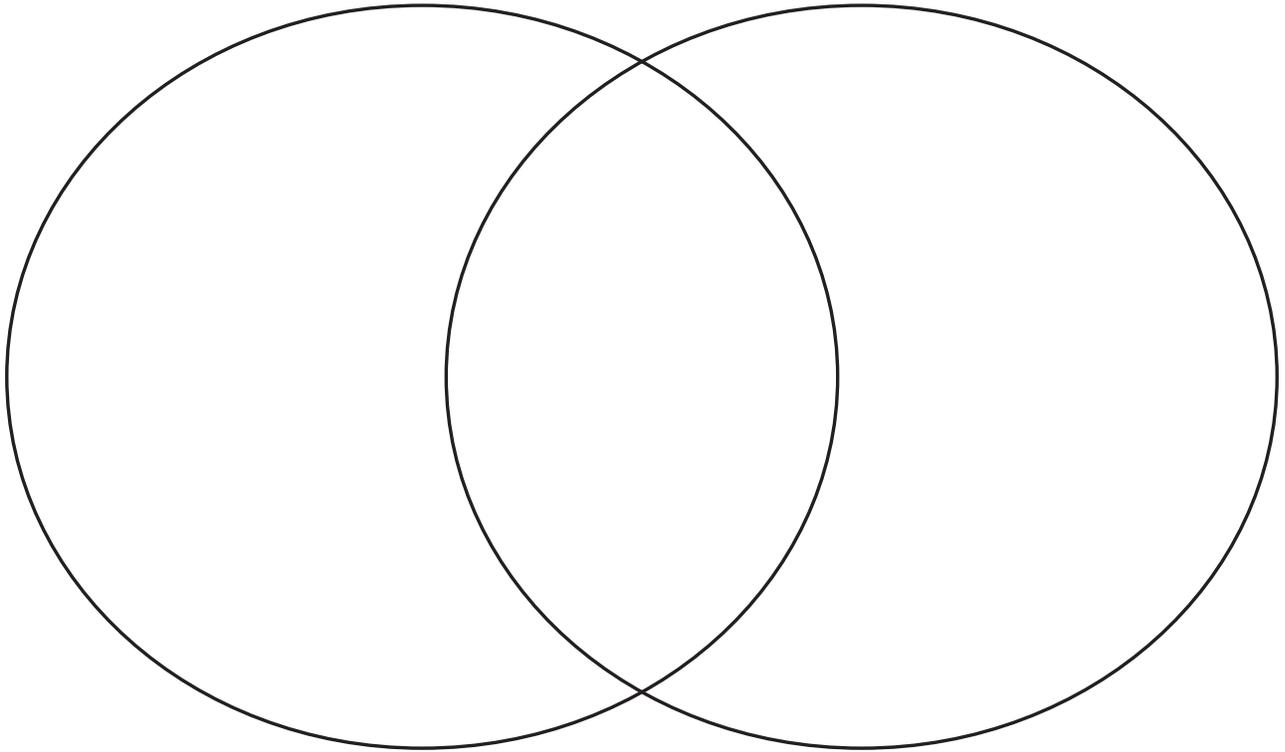
Provide each group of students with a choice of at least four different soil samples on paper plates. Ask students to choose one kind of soil, then observe and identify the physical properties of the sample. Ask student write at least two sentences, in their science journal, describing the way they classify the soil. Next, students should draw an illustration with a title and two labels classifying the soil sample by color and texture. Students may observe, identify, and classify more than one sample.

Rubric:

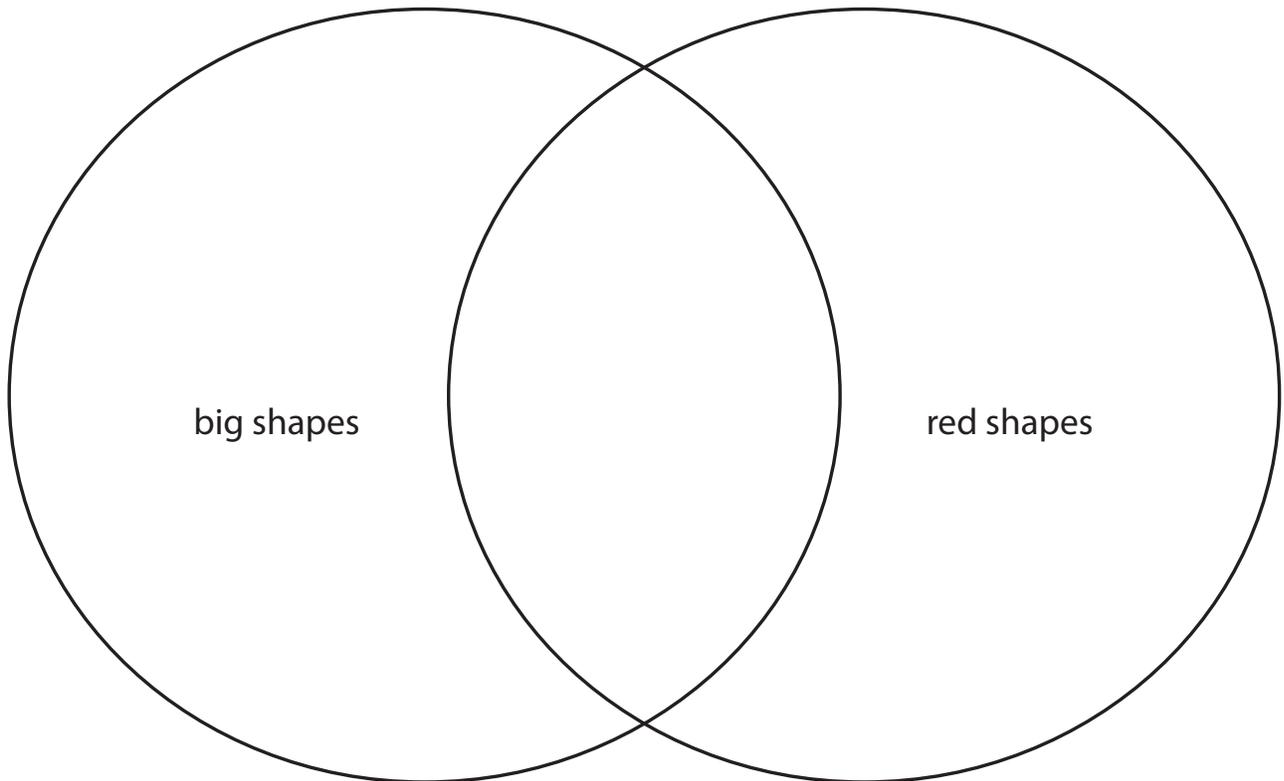
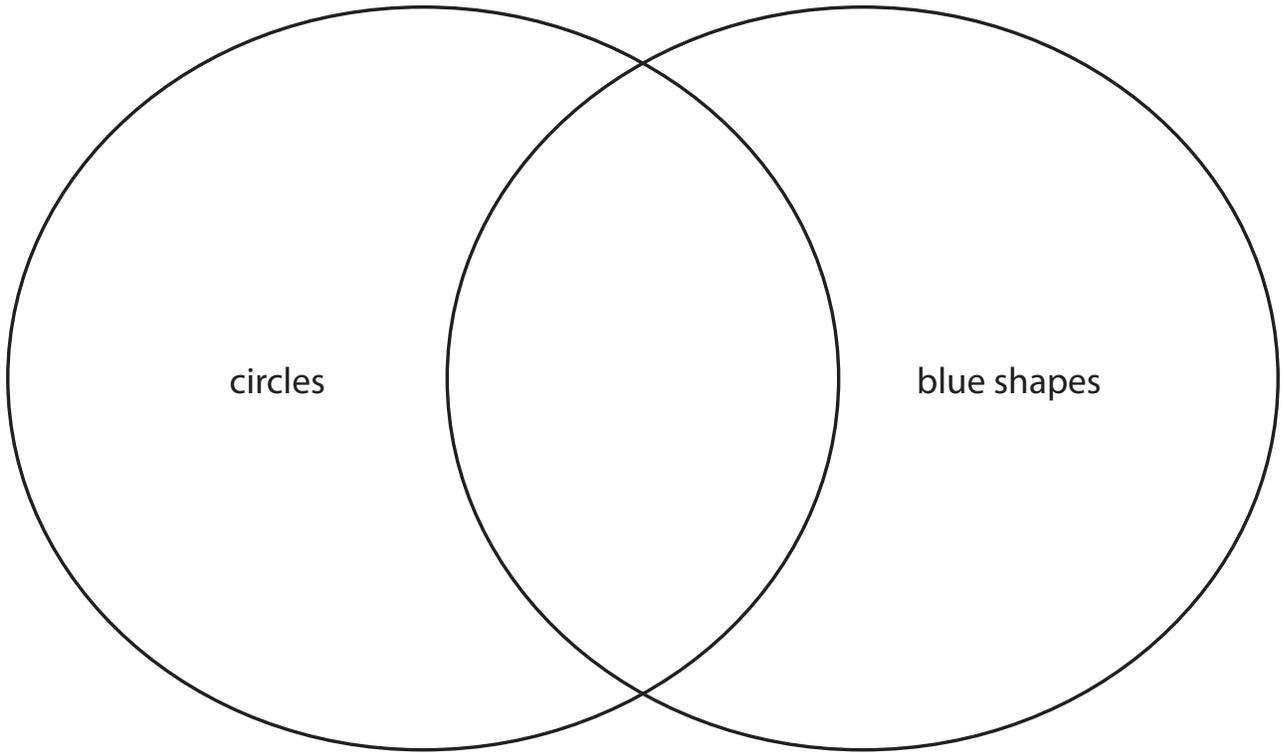
Objective	GLE	Below Proficient	Proficient	Above Proficient
The student identifies soil samples according to physical properties.	[3] SB1.1	The student does not identify the physical properties of one soil sample.	The student identifies the physical properties of one soil sample.	The student identifies the physical properties of two or more soil samples.
The student observes and classifies soil samples.	[3] SA1.1	The student observes and classifies only the color or texture of one soil sample, or does not observe and classify either.	The student observes and classifies the color and texture of one soil sample.	The student observes and classifies the color and texture of two or more soil samples.
The student writes sentences about matter, and draws an illustration with a title and labels.	[3] W1.2.2	The student writes about the physical properties of matter but includes one or fewer sentences in a science journal; or does not make an illustration; or does not include a title and two labels.	The student writes about the physical properties of matter, including two sentences in a science journal, and draws an illustration with a title and two labels.	The student writes about the physical properties of matter, including three or more sentences in a science journal, and draws an illustration with a title and two labels.

NAME: _____
BLANK VENN DIAGRAM

STUDENT WORKSHEET



NAME: _____
LBELED VENN DIAGRAM



NAME: _____
RECORDING SHEET

STUDENT WORKSHEET

Examine the contents of your junk box. Using physical properties, classify the items into different categories. Record your categories in some way that makes sense. Will you use lists? Webs? Pictures? Venn diagrams?

Write at least two sentences explaining why you classified the items the way you did:
