



CONSTRUCTING TASK: USING A BALANCE SCALE

Approximately 1 day

This lesson is adapted from “Using a Balance Scale” found at K-5_MathTeachingResources.com

STANDARDS FOR MATHEMATICAL CONTENT

MCC.K.MD.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

MCC.K.MD.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

STANDARDS FOR MATHEMATICAL PRACTICE

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.

BACKGROUND KNOWLEDGE

Kindergarten students most likely will have no prior knowledge of using a balance scale. You may want to discuss with them that when something heavy is placed in our hand, our hand drops down from the weight. Then discuss that on a balance scale, the heavier an object is, the lower that side of the scale drops. Objects have multiple measurable attributes. Remind the students that it is important to identify the attribute being measured. Remember:

- It is important that the students clearly identify the attribute being measured.
- It is important that the students realize that BOTH objects must share the attribute before a comparison can be made.

ESSENTIAL QUESTIONS

- Does it matter how we measure?
- When two objects are similar, how do we KNOW that we are correct with our comparison?
- What qualities of an object can be measured?
- How can I record my information?

MATERIALS

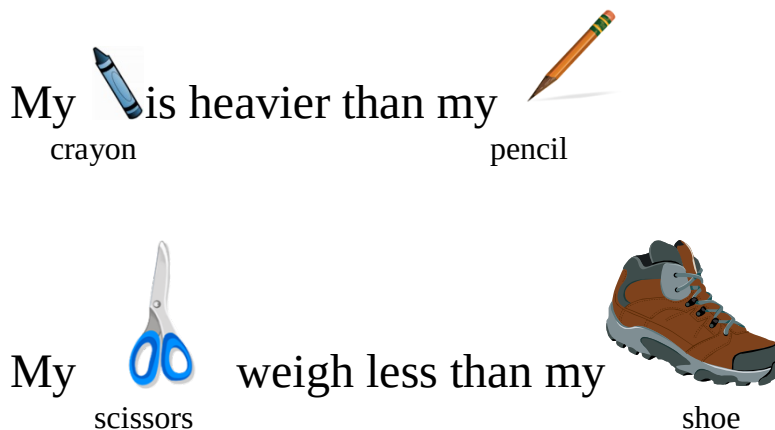
- Balance scales
- Items of various weights (examples could include: a box of crayons, a marker, a pencil, a glue stick, paperclip, etc.)

GROUPING

Whole group and small group task

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Gather students together at meeting area and explain that today we are learning how a balance scale works and comparing objects to see which one is heavier or lighter. Demonstrate how the balance scale is even when each side has the same amount of weight. When you place a heavier object on one of the sides the heavier of the two objects will sink down lower than the other side. Demonstrate this with several different objects. Discuss with the students that we do not always need a balance scale to help us tell if an object is heavier or lighter than another object, but when the objects are close to the same weight it helps us know that our answer is correct.



Tell students they are going to explore comparing objects and writing true math statements. Explain that, as a group, they are to compare five objects of varying weights. Give each group a pre-made bag of items such as books, pencils, crayons, glue sticks, paperclips, etc.

Once they have their bag of objects, they are to lay the objects they have chosen on their table. Students choose 2 items at a time to compare. They should compare the two objects and write a true math statement to describe the comparison of common attributes. They decide if it is necessary to use the balance scale to prove their statement.

All students in the group do not have to choose the same two objects to compare. Different comparisons between partners will encourage more productive discussions. For example, a pair of

scissors may be heavier than a paperclip but lighter than a book. Students can have these discussions when writing their math sentences. Again, please note students are only comparing 2 items at a time. When students complete their comparisons, let them discuss their findings.

Allow students time to share their comparisons. Record these findings on the *Using a Balance Scale* recording sheet. This gives an opportunity to communicate their discoveries in mathematical language. Discuss with the whole group why it DOES matter how you measure.

Teacher reflection questions:

- Are students able to determine which item is heavier/lighter than another?
- Are students able to compare objects by their size and explain why this would be important?
- Are students able to use mathematical language to describe the measurement of attributes of items?
- Can students decide or offer ideas for how to organize/record information?
- Are students able to explain how to record results? Do they understand why this is important to do?
- Can students explain why we need to have common endpoints when comparing the height or length of two objects?

FORMATIVE ASSESSMENT QUESTIONS

- Why do we need a balance scale?
- What attributes did you measure?
- Are there any other ways to compare these objects?
- Why did you decide to measure it this way?
- Which object is heavier? How do you know?

DIFFERENTIATION

Extension

- Students can be encouraged to find objects throughout the room that can be measured with identified attributes or choose another bag to discuss and record observations.
- Encourage students to compare different attributes of the same two objects.

Intervention

- Allow students to work through the stages at a speed that is appropriate for their performance level. Some students may need additional experiences acting out problems, using manipulatives, or drawing pictures.
- Put together baggies that have only two items in them and items are significantly different in weight.
- Allow additional time with balance scales. To begin, have them concentrate on items that weigh the same so they can practice getting things balanced.

Using a Balancing Scale

Name: _____

My...	Weighs less than 	My...
My...	Weighs more than 	My...
My...	Weighs less than 	My...
My...	Weighs more than 	My...

Georgia Department of Education
Common Core Georgia Performance Standards Framework
Kindergarten Mathematics • Unit 5

My...

Weights less than



My...