

Weight

Lesson by Cameo Lakey (created 11/05/17 with the CalStateTEACH Lesson Plan Assistant)

ATTACHED FILES AND VIDEOS

[Weight_Assessment.docx](#)

[Lakey_ScienceLesson_11_enc.mp4](#)

GENERAL COMMENTS

I. ESTABLISHING GOALS AND STANDARDS

Subject Area(s)

Science

Central Focus

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.

Standards

California Academic Content Standards

Science, Grade K

Physical Sciences | 1 Properties of materials can be observed, measured, and predicted. As a basis for understanding this concept:

- Standard 1a: Students know objects can be described in terms of the materials they are made of (e.g., clay, cloth, paper) and their physical properties (e.g., color, size, shape, weight, texture, flexibility, attraction to magnets, floating, sinking).

Investigation and Experimentation | 4 Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- Standard 4d: Compare and sort common objects by one physical attribute (e.g., color, shape, texture, size, weight).

Common Core Standards

English-Language Arts, Grade K

Speaking and Listening Standards | Comprehension and Collaboration

- Standard 1: Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups. a) Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b) Continue a conversation through multiple exchanges.

Speaking and Listening Standards | Comprehension and Collaboration

- Standard 3: Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

Language Standards | Vocabulary Acquisition and Use

- Standard 5: With guidance and support from adults, explore word relationships and nuances in word meanings. a) Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent. b) Demonstrate understanding of frequently occurring verbs and adjectives by relating them to their opposites (antonyms). c) Identify real-life connections between words and their use (e.g., note places at school that are colorful). d) Distinguish shades of meaning among verbs describing the same general action (e.g., walk, march, strut, prance) by acting out the meanings.

Mathematics, Grade K

Measurement and Data (K.MD) | Describe and compare measurable attributes.

- Standard 1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

Measurement and Data (K.MD) | Describe and compare measurable attributes.

- Standard 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.

California English Language Development Standards

Listening and Speaking, Grades K-2

Strategies and Applications | Beginning ELD level | Comprehension

- Standard : Answer simple questions with one- to two-word responses.

Strategies and Applications | Beginning ELD level | Comprehension

- Standard : Respond to simple directions and questions by using physical actions and other means of nonverbal communication (e.g., matching objects, pointing to an answer, drawing pictures).

Grade/Level

Pre-K, Kindergarten

Content Objective

At the conclusion of this science lesson, Transitional Kindergarten and Kindergarten students will be able to determine which of two different objects is heavier and lighter by using a balance scale and circling the image of the heavier object on a piece of paper with a pencil. 70% of the students will meet the objective.

Academic Language Demands

Students will understand the science vocabulary being used (weight, heavy, light, heavier, lighter, balance scale) through teaching methods that include linking the past learning of greater than and less than in math, saying the vocabulary terms together as a group, showing what the vocabulary words mean through showing a video and providing visual examples of light and heavy objects, modeling how to use the balance scale, students completing the guided practice, independent practice, and assessment by using the balance scale to determine which of two different objects is heavier and which is lighter, and asking them questions that they need to answer by using the vocabulary terms.

II. LEARNING ABOUT STUDENTS

Class Information

- Total Number of students: 27 (9 TK, 18 K)
 - Number of boys: 12 (3 TK, 9 K)
 - Number of girls: 15 (6 TK, 9 K)
 - African American: 3 (1 boy, 2 girls)
 - Asian American: 1 (1 boy, 0 girls)
 - Caucasian: 17 (6 boys, 11 girls)
 - Hispanic/Latino Americans: 6 (4 boys, 2 girls)
 - English Language Learners: none identified
 - Special Needs: Speech - 3 (1 boy, 2 girls)
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III. MAKING ADAPTATIONS

Adaptations

Wait Time, Grouping, Preferred Seating, Technology

Adaptation Details

Students who did not turn in permission slips to be videotaped will still be taught this lesson; however, they will be seated at the back of the ABC rug and at the back of the room in order to not be shown in the video. English Learners (ELs) will be provided with visuals including a video using and showing the vocabulary (weight, heavy light), a physical example of a lighter object (chair) and a heavier object (desk), and images of light and heavy objects. Additionally, allowing ELs to answer using one word sentences and/or pointing to a visual, providing them with one-on-one assistance when needed, and partnering them with an English fluent student for scaffolding. For speech students, I will stand in close proximity to them while they are speaking and will partner them with a student without a speech impediment for scaffolding. Checking the work first of students who lose focus easily or become frustrated quickly when meeting a performance obstacle and repeating directions to these students directly to ensure they understand what they need to do.

IV. ANALYSIS OF STUDENT LEARNING

Assessment

Formative

Description of Assessment

Written Assessment: At the end of the independent practice, students will be given a worksheet (see attached example: Weight_Assessment) that will require students to look at the two images of objects on the worksheet, find these objects within the objects on their table, and place these objects in the balance scale to determine which of the two different objects is heavier. Students will then circle the image of the heavier object on their worksheet. These worksheets will be collected.

To prevent cheating, each student at a table will have to compare different objects from those of their peers. Additionally, there are only enough balance scales for one at each table and thus, students will be numbered beforehand on who will use the balance scale first, second, third, etc. While students are waiting for their turn and waiting for others to complete their assessment, I will also direct the students to turn their assessment paper over and draw images of light objects on the top of their paper and images of heavy objects on the bottom of their paper.

V. PROCEDURE

Prerequisite Background Knowledge/Skills

Students must be able to know how to use a pencil, how to write their name, and how to make a circle with their pencil. Additionally, students must be able to match an image of an object with the real thing.

Materials

Technological Materials:

- Computer
- ELMO Projector
- SMART Board
- Youtube
- Sound

Other Materials:

- Balance Scale
- Guided Practice Worksheet
- Independent Practice Worksheet
- Assessment Worksheet
- Number Cards (1-6)
- Name Cards (if needed)
- Student Folders
- Pencils
- toys (dinosaur, bear, cars)
- rocks (agates)
- marbles
- keys
- seashells
- crayons
- clothes pins
- quarters
- stuffed animals
- balloons
- cotton balls
- craft feathers

INSTRUCTIONAL STRATEGIES

Open

~starting at the ABC rug~

LINKS TO PAST LEARNING:

1. I will write two numbers on the board and will ask students to share which number is "greater than" the other number and which number is "less than" the other number. I will have students repeat after me that "greater than" means it is bigger, or there is more and "less than" means it is smaller, or there is less.

STATE THE OBJECTIVE:

2. I will point to a sheet of paper on the board with the objective written on it and will read it to the class first, then we will read it together: "Students will determine which of two objects is heavier and lighter by using a balance scale. Students will circle the image of the heavier object on a sheet of paper."

WHAT THEY WILL BE LEARNING:

3. I say: "Today we are going to learn about weight by choosing which object weighs greater than, or more than, a different object and which object weighs less than, or not as much as, a different object."

Body

1. I say: "Every object has weight. Let me hear everyone say weight" *students say weight*
2. I have students stand up and jump into the air. I tell them that the reason they came back down instead of floating to the ceiling was because they have weight, just like every other object. I have students repeat after me, "Every object has weight."
3. I say: "Some objects have more weight and other objects have less weight. Objects with a lot of weight are heavy, let me hear everyone say heavy" *students say heavy* "And objects with a little bit of weight are light, let me hear everyone say light." *students say light* "If an object weighs more than another object, then it is heavier, let me hear everyone say heavier." *students say heavier* "And if an object weighs less than another object, then it is lighter, let me hear everyone say lighter." *students say lighter*
4. I show them the video, "Heavy and Light, Comparison for Kids" <https://www.youtube.com/watch?v=SQml21BB8mA>

GUIDED PRACTICE:

5. I show them a chair and a desk, I ask them to partner share, which object they think will be lighter and which object they think will be heavier. *students share* I then pick up the chair and try to pick up the desk. I direct the students to say out loud which object was lighter and which object was heavier.
6. Using the SMART Board, I show them some different images of objects and have the students tell me what the object is and whether the object in the image is light or heavy. I circle the heavy objects.

MODELING:

7. I show the students a balance scale and model to them how to use it to determine which object is heavier by using a feather and a rock.
8. I give them directions of what they will be doing at their seats and will tell them how to share the balance scale at their table by modeling (students sitting at the number 1 spot will pick and put the objects in it for problem 1, then the student sitting at the number two spot, and so on).

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9. Students go to their seats and we complete the first three problems together. I walk the room to check student work and assess their performance, providing any clarification or one-on-one assistance where needed. I choose students using equity sticks to circle the heavier object from the worksheet being projected onto the whiteboard with the SMART Board.

INDEPENDENT PRACTICE:

10. The students complete the last three problems independently. I walk the room to assess student performance. I choose students using equity sticks to circle the heavier object from the worksheet being projected onto the whiteboard with the SMART Board after everyone is finished.
 11. Students put these worksheets away in their folders.
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Close

ASSESSMENT:

1. I project an example worksheet on the board (objects will be a feather and a rock) and give the students directions on how they are expected to complete the assessment worksheet. I tell the students that the objects they will be comparing will be different from mine and their peers. I also remind the students how they are to share the balance scale at their table by waiting their turn (according to their seat numbers) and direct the students to turn their assessment worksheets over and draw light objects on the top of their paper and heavy objects on the bottom of their paper while they wait before and after completing the assessment.
2. I handout the worksheets and students complete the worksheet.
3. When the students have finished, I will direct them to come back to the ABC rug.

~students sit at the ABC rug~

WHAT THEY HAVE LEARNED :

4. I ask the students some questions and have them answer, whole group, to check their understanding. (Every objects has ____? An Object that weighs more than another object is ____? An Object that weighs less than another object is ____? On a balance scale, the heavier object will be down or up? The lighter object?)

~END OF LESSON~

VI. ANALYSIS AND REFLECTION

Analysis and Reflection

The Kindergarten students had previously learned what greater than and less than was within the context of mathematics, so I developed this lesson for the Kindergarten students to further explore these concepts by learning about weight while also including the Transitional Kindergartners for scaffolding. My site mentor does not have the time to fit a lot of science lessons into her day, so I felt this lesson would be a great opportunity for students to be introduced to a new subject while linking their learning from the subject of mathematics.

The parts of the lesson that I felt were effective included opening the lesson by linking their past learning from mathematics, which provided the students with a foundation of transitioning these concepts when working with objects and their weight. I also felt the partner activity of sharing what object they thought was heavier and lighter between the chair and table was successful, I was able to hear most of the students using the vocabulary while talking to their partners and many of them correctly stating that the desk was heavier and the chair was lighter. I additionally heard some of the students explaining to their partner why they thought the desk was heavier and why they thought the chair was lighter. I gave the students a few minutes to look at and explore the manipulatives before beginning the guided practice, which was effective in satisfying their innate curiosity to explore new things and kept them from losing attention by exploring these objects while trying to complete the worksheets at the same time. I also felt the strategy of giving each of the students a number so that way they would know the order of how to share the balance weight alleviated any disruptions of students fighting over who gets to put the objects in the balance weight and gave everyone the opportunity to practice using the manipulatives before completing the assessment. Even though the assessment took more time to complete because of having to share one balance scale at each table, I felt that the students sharing the scale during the guided and independent practices was a great opportunity for them to practice sharing and cooperative learning. It was a joy to see students working together to find the two objects they needed to use and helping the student whose turn it was to place the objects into the scale.

The changes I would make to my instruction to better support student learning would be to show the students each object that they had at their tables and tell them the name of that particular object while the students were still at the ABC rug. This way, they would have an introduction to each object in their head while completing the hands-on exploration of the objects at their tables before beginning the worksheets. This also would be a good lesson to introduce the practice of creating a hypothesis and then testing the hypothesis. We touched on this while completing the partner activity of the students sharing which object they thought was lighter and heavier while at the ABC rug, but I also could of continued this by asking the students which object they thought would be heavier before placing them in the balance scale while completing the guided practice worksheet. Further, it would be best for me to provide additional modeling with what I do not want to see the students doing with the manipulatives in order to diminish behavioral problems related to misusing these objects.

My objective goal was for 70% of the class, or 19 out of 27 students, to complete their assessment worksheet correctly by circling the heavier object on their paper. The actual assessment results consisted of 15 out of 20 students, or 75% of the class, (7 students were absent) successfully meeting the objective (see application/next steps below for what I would do with this information).

Application/Next Steps

Even though the goal was met (more than 70% of the class correctly completed the objective), I would like to work with these five students in a small group during center time in order to further assess where they are struggling with determining the heavier object by using the balance scale and to provide them with additional, explicit, instruction and practice.

From the question and answer activity I performed with them at the very end of the lesson in order for them to tell me what they learned, I assessed that additional practice with using the terminology is needed. The students need practice with understanding the contexts of when to use heavy vs heavier and light vs lighter, they need opportunities to talk about weight and to use the terms weight and balance scale in speech. Some of the students also need additional practice in order to reinforce that an object that goes down on the balance scale means it is heavier and an object that goes up on the balance scale means that it is lighter, since some of the students were mixing these up.

Additionally, the students did have the opportunity to witness the limitations of technology via technological issues when the pen for the SMART Board ran out just as I was beginning the lesson. This affirmed the necessity for me to have backup materials ready to go just in case my lesson is met with any technological issues.
