

## Lesson Plan

<b>Grade:</b> fifth	<b>Subject:</b> science
<b>Materials:</b> blue paper, pencil, teacher white board marker and white board, scale kit, salt, cups	<b>Technology Needed:</b> none
<b>Instructional Strategies:</b> € Direct instruction                      € Peer teaching/collaboration/ € Guided practice                              cooperative learning € Socratic Seminar                            € Visuals/Graphic organizers € Learning Centers                            € PBL € Lecture    € Discussion/Debate € Technology integration                    € Modeling € Other (list)	<b>Guided Practices and Concrete Application:</b> € Large group activity                      € Hands-on € Independent activity                      € Technology € Pairing/collaboration                      integration € Simulations/Scenarios                    € Imitation/Repeat/ € Other (list)                                      Mimic  Explain:
<b>Standard(s)</b>  5-PS1-2 - Measure and graph metric quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total mass of matter is conserved.	<b>Differentiation</b> <b>Below Proficiency:</b> <ul style="list-style-type: none"> <li>● Working with peers who are above proficient to discuss their thinking or answer questions when working with the balance scales</li> <li>● Looking at the visuals on the board for the questioning prompts to answer on their blue pieces of paper</li> <li>● Using hands-on material to manipulate and figure out how to measure out 20 grams of salt</li> </ul> <b>Above Proficiency:</b> <ul style="list-style-type: none"> <li>● Explaining their thinking to students who are below proficient when working with the balance scales trying to figure out how to measure out 20 grams of salt</li> <li>● Testing out different theories and ideas using the balance scale and balance weights</li> </ul> <b>Approaching/Emerging Proficiency:</b> <ul style="list-style-type: none"> <li>● Working with peers to discuss and figure out how to solve the prompt of measuring out 20 grams of salt using a balance scale</li> <li>● Manipulating the scale, balance weights, and salt measurements to figure out what equals 20 grams</li> <li>● Using visuals on the board to help them continue their thinking and thought process</li> </ul> <b>Modalities/Learning Preferences:</b> <ul style="list-style-type: none"> <li>● Visuals- questions wrote on the board for the students to reference throughout the class, looking and observing what the scale is doing</li> </ul>
<b>Objective(s)</b>  By the end of the lesson, students will have analyzed and discussed what weight is by using a balance scale and balance weights to measure out 20 grams of table salt.  <b>Bloom's Taxonomy Cognitive Level:</b> create	

	<p>when they add salt, cup, or a balance weight to their scale</p> <ul style="list-style-type: none"> <li>• auditory - listening to peer and teacher discussions, listening to directions, listening to what weight is and how we can figure out somethings weight with a balance scale</li> <li>• Kinesthetic - working hands on with salt, a cup, and a balance weight to figure out how to find the measurement for 20 grams of salt</li> </ul>
<p><b>Classroom Management- (grouping(s), movement/transitions, etc.)</b></p> <ul style="list-style-type: none"> <li>• Attention getter <ul style="list-style-type: none"> <li>○ (give me ____, hold up ____ amount of fingers)</li> <li>○ Eyes and ears on me in three, two, one</li> <li>○ Back to your seats in five, ..., one</li> </ul> </li> <li>• When students will be seated at their tables and have a voice level of 0 during instruction time</li> <li>• Students should have nothing on their tables until asked to get their science notebook and pencil out <ul style="list-style-type: none"> <li>○ if they have something on their table, then I will ask the students if their job is to be listening or to have materials out right now</li> </ul> </li> <li>• Teacher will use the “give me __” method to gain the student’s attention back to start cleaning up</li> <li>• After turn and talks, I will call the students back to me by saying, “eyes on me in 5,.. 1”</li> <li>• When students will be moving into groups for the reading activity with their peer, they will be except to move quietly, safely, and efficiently</li> <li>• Teacher will share out how many minutes the students have left so they can pace themselves while reading through their book with their peer</li> <li>• When I need to get the students attention back, I will call out “class, class” for them to reply “yes, yes” <ul style="list-style-type: none"> <li>○ Repeat if needed</li> </ul> </li> <li>• Students will use voice level 1 while they are reading with their partners and also during the pair and share time</li> <li>• If a student is talking out of turn or during instruction, the teacher will remind them that she only wants to hear from students who raise their hand</li> </ul>	<p><b>Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)</b></p> <ul style="list-style-type: none"> <li>• Students will not blurt out when teacher is talking</li> <li>• Students must have whole body listening (listening with their eyes and ears)</li> <li>• Students must not lay their heads on the table when teacher is talking</li> <li>• Students must raise their hands when they want to answer a question</li> <li>• Students will work independently when they are creating their notes on their blue paper</li> <li>• During turn and talks, students must participate with their peers</li> <li>• Students must participate with their peers when measuring out different amounts of table salt and working with the balance scales and weights</li> <li>• Students must use the materials appropriately otherwise they will not get to continue to work with the class on the project</li> <li>• Students must be working, and if they have a question they may ask a neighbor for help or raise their hand so a teacher can help</li> <li>• Students must clean up the materials when they are asked by the teacher</li> <li>• When students are helping their peers, they will be expected to be on task</li> </ul>
<b>Minutes</b>	<b>Procedures</b>
	<p><b>Set-up/Prep:</b></p> <ul style="list-style-type: none"> <li>• Balance scales at the front of the rooms on the teacher table</li> <li>• Cups of table salt ready</li> <li>• Cups with nothing in them ready</li> <li>• Pieces of blue paper ready</li> </ul>
	<p><b>Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.)</b></p> <ul style="list-style-type: none"> <li>• “Today we are going to be scientists working with the metric unit of grams. What do grams measure? (weight)? What kinds of objects measure weight? What is weight? Is weight the same as mass?” <ul style="list-style-type: none"> <li>○ Throughout these questions do turn and talks with partners and then share outs with the class</li> <li>○ Write the word weight on the board and then write things that students are coming up with</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>■ (weight is affected by gravity - it is the measure of force of gravity on an object)</li> <li>■ (mass and weight are different - mass doesn't change no matter where you are in the universe, weight does. Think of my mass on the moon and earth versus my weight on the moon and earth)</li> <li>● "Scientists, when I hop on a scale at my house to weigh myself, it tells me an exact number. Give me a thumbs up or down if you think that this balance can tell me an exact number of an object's weight?" <ul style="list-style-type: none"> <li>○ (yes - you can find the exact weight of an object using a balance scale and today we are going to measure out the weight of table salt!)</li> </ul> </li> </ul>
	<p><b>Explain: (concepts, procedures, vocabulary, etc.)</b></p> <ul style="list-style-type: none"> <li>● Vocabulary - balance scale, weight,</li> <li>● Teacher will hand out blue pieces of paper <ul style="list-style-type: none"> <li>○ "Ladies and gentleman, please write your name on the top of this blue piece of paper. (model this on the board) Next draw three boxes in a horizontal line from each other in the top ½ of the paper. (model this for the students on the whiteboard). Now, please place this to the side until we come back to it in a bit."</li> </ul> </li> <li>● "Learners, today like I mentioned we are going to be working with balance scales. What kinds of things do you use balance scales? (to measure out and see if something is heavier or lighter than the other object)"</li> <li>● "At your tables, please designate one person to come up and grab a balance scale to place in the middle of your table" <ul style="list-style-type: none"> <li>○ "Once the balance scale is in the middle of your group's table, as a group discuss what the needle or does WITHOUT touching it?" <ul style="list-style-type: none"> <li>■ Turn and talk with their peers for about 2 minutes</li> <li>■ Call students attention back using an attention getter</li> <li>■ Discuss with the class what their group talked about</li> </ul> </li> </ul> </li> <li>● "Now learners, what are some other wonderings you have about this balance scale?" <ul style="list-style-type: none"> <li>○ Turn and talk with their peers for about a minute</li> <li>○ Call students attention back using an attention getter</li> <li>○ Discuss with the class what their group talked about</li> </ul> </li> <li>● "Scientist, so remember when I said you could solve for the exact weight of something using a balance scale, how do you think you can do that?" <ul style="list-style-type: none"> <li>○ Turn and talk with their peers for about 2 minutes</li> <li>○ Call students attention back using an attention getter</li> <li>○ Discuss with the class what their group talked about</li> <li>○ (using the pegs in the front flap of the scale)</li> </ul> </li> <li>● "Can one learner open the front flap (model) of the balance scale?" <ul style="list-style-type: none"> <li>○ Once the learner has done that, ask that everyone's hands go back in their laps and away from the scale</li> <li>○ "So each one of these pegs has a number on them. What do you think that number means? (how much they weigh) What unit is the weight in? (metric unit of grams) Where else have you heard the word grams before? (cooking, grocery shopping, math)</li> <li>○ The different weights of pegs in your balance scale are 50, 20, 10, 10, 5, 5, 2, 2, 1, and 1</li> <li>○ Pull out the 20 grams <ul style="list-style-type: none"> <li>■ "If I ask for 20 grams of something, how would I know if something is going to be equal to this 20 grams?" <ul style="list-style-type: none"> <li>● Turn and talk with their peers for about a minute</li> <li>● Call students attention back using an attention getter</li> <li>● Discuss with the class what their group talked about</li> </ul> </li> <li>■ Reminder to have the students take their hands off of the materials and not to mess with it</li> </ul> </li> </ul> </li> <li>● <b>I DO -</b> <ul style="list-style-type: none"> <li>○ Explain the directions to the students now on what they are going to do during today's lesson</li> <li>○ I am going to give you each a plastic cup with table salt in it. When you get the table salt, are we allowed to TASTE it?! NO. The number one rule of science class is to NEVER taste the science materials. "What is the rule?" Have the students repeat this back to me. "What happens if you taste the science materials?" They will be removed from the activity and not allowed to participate anymore. So state again that I am going to give them a plastic cup with table salt in it</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ “Next scientists, I am going to give you all another plastic cup that is empty. What do you think we are going to do with this cup?” (fill the cup with salt from the other cup)</li> <li>○ “Learners, my goal is to figure out how much salt is equivalent in weight to 20 grams.” <ul style="list-style-type: none"> <li>■ Model finding the peg that has 20 on it and talk aloud how I know this 20 means grams and grams is a metric unit of weight</li> <li>■ Model putting the 20 grams onto one side of the scale</li> <li>■ Model placing the empty plastic cup onto the other side of the scale - dump the table salt into the cup (over pour to make the balance not equal) <ul style="list-style-type: none"> <li>● “Well now learners, I am thinking to myself on what I have to do next since that was too much. What would my group have to do?” (discuss)</li> </ul> </li> <li>■ “Scientists now that I have modeled for you what I would like you to do, when I say the G.O. word I would like you to work in the groups at your table with your balance scale (what does group work mean again?) I will place the salt cups on the right table and the empty cups on the left table for someone in your group to come and grab.”</li> <li>■ G.O</li> <li>■ While the students are getting their material, write on the white board that they are weighing out 20 grams of salt</li> </ul> </li> </ul>
	<p><b>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)</b></p> <ul style="list-style-type: none"> <li>● <b>WE DO -</b> <ul style="list-style-type: none"> <li>○ Students will work with their table partners to weigh out 20 grams of salt through trial and error</li> <li>○ Teacher will walk around and monitor the students</li> <li>○ Give the students around 5 minutes to work on this</li> <li>○ Tell the students when they think that they have weighed out 20 grams of salt, to PAUSE and answer the writing prompt on their blue sheet under the boxes and fill in the first box with 20 grams <ul style="list-style-type: none"> <li>■ “How did you make sure you had 20 grams of table salt?” <ul style="list-style-type: none"> <li>● After they write their answer, have the students do a turn and talk and then a class discussion</li> </ul> </li> </ul> </li> <li>○ “Learners, now that you have measured out 20 grams of salt, do you actually think you measure out JUST 20 grams of salt? (no - we didn’t take into account the weight of the plastic cup) <ul style="list-style-type: none"> <li>■ Discuss what we should do about that <ul style="list-style-type: none"> <li>● Model for the students by dumping the salt out of the cup onto one side of the scale OR can add cup to the other side of the scale and then have to adjust the salt amount</li> </ul> </li> <li>■ Have the groups refind 20 grams of salt</li> </ul> </li> <li>○ This will talk about 20 minutes in total</li> </ul> </li> <li>● When the learners are about done, hand out sharpie markers so students can write their names on the cup of table salt with the 20 grams in it and also write the amount on the cup <ul style="list-style-type: none"> <li>○ Have the students set by the sink for the next science class</li> <li>○ Have the students put the gram pegs back into the scale flat and close</li> <li>○ Have the students place the scales back at the front of the classroom</li> <li>○ Have the student place the extra salt cups back on the teacher table in the front</li> <li>○ Have the students put away their blue pieces of paper in their science folder for the next science class</li> </ul> </li> <li>● Hand out a ½ piece of paper with the writing prompt - “What is weight and how do you find the weight of something using a balance scale?” on the board for the students to answer as an exist question</li> </ul>
	<p><b>Review (wrap up and transition to next activity):</b></p> <ul style="list-style-type: none"> <li>● “Scientists, today we worked with balance scales and weight. What is something that you can tell me about balance scales that you didn’t know? What was something in the activity that was harder than you expected? What is weight? Since today was just an introduction to the balance scales and weight, next week when you come back you will continue working with these materials and this science concept. Now would you please put your things away and get ready to go to lunch.”</li> </ul>

**Formative Assessment: (linked to objectives)**

**Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.**

- Observation of the students and listening to their discussions when measuring out the grams of table salt
- The students 1/2 pieces of paper with their answers to the exit slip question
  - I am looking for the students to define the word weight as something that is affected by gravity - it is the measure of force of gravity on an object
  - I am looking for the students to say that they had to use trial and error to find the weight of the table salt to equal 20 grams and they knew it was 20 grams when the weight was balanced.

**Consideration for Back-up Plan:**

**Summative Assessment (linked back to objectives)**

**End of lesson:**

For this lesson I do not have a summative assessment since this is the beginning of learning about weights and balance scales. They students will have a summative assessment next week after another class of discussing weight and mass.

**If applicable- overall unit, chapter, concept, etc.:**

**Reflection (What went well? What did the students learn? How do you know? What changes would you make?):**

This second science lesson went way better than my first science lesson. I could tell the students were more engaged with this lesson because there was a lot of class discussion and participation. From what I observed the 5th grade science teacher teach this lesson, I changed some procedures to fit on how I like to teach. I made sure the template of the lesson was the same so the students were receiving the same information as the other fifth grade class, but I made it more interactive and hands-on. I would say eighty percent of the students had never worked with a balance scale before which was fun to see their sense of wonder and how quickly they figured out how to use it. It was interesting to me at the beginning of the lesson on how students were describing what weight was. Most students confused the term mass for weight, so it was good for both myself and the teacher to know and sort of assess their knowledge of what weight is before we started the activity. During the activity the students were engaged because each group was working together and discussing the best game plan of how they should measure the salt and to decide how equal they could get it. It surprised a lot of the students that you could get an exact measurement of something using a balance scale. Another thing that I thought was interesting while I was listening to the students discuss how they knew they had twenty grams of table salt. If I were to do this activity again, I would have liked to model my knowledge of using the balance scale with the students but I wasn't able to do this because there weren't enough scales for the groups of kids in the room. I feel like this would have been more helpful because some kids were struggling with knowing which way they should measure the salt out. Another thing I would have liked to do during this lesson was to create a summative assessment for the lesson and not just have a formative assessment. Since I was not planning to teach the second part of the lesson due to being back in college classes, I didn't create a formative assessment. If I would have created a formative assessment, I would have had the students create a hypothesis and testing graph labeling and testing if weight changes when you add table salt to water and it dissolves or not. The students would test out the information together and create their hypothesis and testing graph by themselves. Compared to the first science lesson I taught, this one was more successful and I would teach it again.