

Inquiry Project Grade 3 Curriculum
Investigating Things in My World: Observing and Measuring Materials and Objects

1. INVESTIGATING MATERIAL	2. INVESTIGATING WEIGHT	3. INVESTIGATING STANDARD MEASURE	4. INVESTIGATING VOLUME
<p>1. What are things in my world made of? Learn to distinguish between an object and the material it is made of.</p> <p>Sort a collection of everyday objects by the materials they are made of. Then look generally at materials that make up the classroom.</p>	<p>1. How good are our senses at comparing the weights of cubes? Order the materials cubes by felt weight.</p> <p>Create need for measurement and introduce the pan balance.</p>	<p>1. How can grams help us compare weights? Introduce standard gram weights and practice using grams to weigh the cubes and other objects. Place objects on a gram weight line. Focus on the relationship between weight and size of objects.</p>	<p>1. What does it mean to take up space? Discuss the meaning of “taking up space” and contrast it with measurements such as length or height. Arrange a diverse set of objects in order by the amount of space they take up.</p> <p>Groups arrange their personal objects by estimated volume.</p>
<p>2. What kind of material makes an object work well? Describe objects by the kind(s) of material they are made of. Think about materials in terms of their usefulness to objects, including materials that make an object work well or badly.</p>	<p>2. What does a pan balance tell us about the weight order of the cubes? Use the pan balance to compare the weights of the materials cubes and check the order that was established by felt weight.</p>	<p>2. How much do the cubes weigh in grams? Weigh the cubes in grams and use the weight line to compare the weights of these same-sized samples of different materials. Bring forward the ideas of the additive and continuous nature of weight.</p>	<p>2. How can centimeter cubes help us measure volume? Arrange a set of four small wood blocks in order by estimated volume.</p> <p>Using plastic centimeter cubes, build replicas of each of the blocks to measure their volumes and check the estimated order. Establish cubic centimeter as standard unit of volume.</p>
<p>3. How are materials the same and different? Observe the materials in 2 cubes to determine how they are the same and how they are different. Introduce the idea of properties. Include the personal objects in this work.</p>	<p>3. How can we measure the weights of our cubes? Space the materials cubes by felt weight and then use uniform weights (paper clips, steel washers, and plastic bears) to compare the weights of the cubes.</p>	<p>3. Do very tiny things have weight? Continually halve an 8-gram piece of plasticine, at each step determining the weight, or, when very tiny, reasoning about whether the tiny pieces still have weight.</p>	<p>3. Does changing the shape of an object change its volume? Arrange 8 plastic centimeter cubes into a “domino” shape (2 cm x 5 cm x 1 cm) and build a plasticine replica.</p> <p>Using the entire 8 cc’s of plasticine, form a variety of shapes or sculptures. Are the new shapes still 8 cc’s in volume?</p>
<p>4. How can we sort cubes that are all the same size? Sort the set of materials cubes by their properties. Use the groupings to highlight the concept of organizing properties into categories</p>	<p>4. How much heavier is one cube than another? Use one of the three uniform weights (paper clips, steel washers, or bears) to determine relative weights of cubes.</p>	<p>4. The 10-10-10-10 Challenge Use grams as standard to measure weight. Experience measuring equal weights of different solid materials. Create something using 10 g each of 4 materials.</p>	<p>4. How can we describe our personal objects? Collect and record information about the personal objects: What materials are they made of? What are their weights and estimated volumes? Once this data is collected, students display it graphically and use the data to develop claims about the class-wide set of personal objects.</p>
<p>5. How do materials help us in our classroom? Take a close look at the materials in one object, focusing on how the properties of each material work together to support the function of the object.</p>		<p>Discussion: How do the sizes of each material vary for a 10 g weight? Some materials are heavier than others.</p>	