

Science Lesson Plan Grade 2 by Stephanie Brown 0475382 February 16th 2011

Title: Understanding "Position"

Grade Level and Unit: Grade 2 Science Unit: *Physical Science: Relative Position and Motion*

Time Estimated: 45-50 Minutes

Outcomes Facilitated: Use materials to build objects that move in a specific manner and describe the object's position relative to other objects (201-3, 100-24, 203-2). Describe the position of an object using language such as "to the left of" etc and place an object in an identified position (100-23, 203-2)

Cross-Curricular Outcomes Facilitated:

Language Arts: 1.1-2.1, 3.1, 4.3, 8.1-8.2,

Math: C1, C5, E1, E3, E8, E11

Physical Education: Students will be refining their fine motor skills in this lesson

Visual Arts: 1.1.1-2.1.1, 4.2.1, 4.3.1, 5.2.1

Objective: Students will demonstrate an understanding of how positioning effects how we see an object and how it moves through manipulating objects and their own perspective at an introductory level.

This lesson is to serve as an introductory lesson into the unit

Suggested accommodations/variations will be listed in italics

Science Literacy: Students will gain new vocabulary with a real world connection to use it. They will make decisions based on the best way to move something, and make observations. Students will be presented with questions by the teacher as the lesson unfolds to provoke their own problem solving in response to the questions.

Materials Needed and Classroom Setup:

Start by putting the tables of the classroom into groups. This can best be done while students are on lunch. Have a variety of objects big and small that students can manipulate by pulling or pushing. Students may enjoy using actual toys such as trucks, pull toys, trains, etc but also include real world objects not generally thought of with pushing and pulling such as a stapler. Anything with hinges would be interesting. Another option to consider may be cooked spaghetti. It depends on the teacher and how well they believe their students will react to the options. The idea is to have options that will move in both predictable and unpredictable ways when pushed or pulled from varying angles. Have these objects placed in the middle of the

tables with the student's chairs positioned so that they will all have a different perspective.

For the activity you will need paper, pencils, and for the follow up activity a worksheet which will contain an object such as a car with instructions to draw the road under the car, a trailer attached to the car, and a cow in front of the car. A template for this worksheet is found on page 100 of the curriculum guide for grade 2 science.

Procedure

Introduction Activity

After having the students break into their groups which should take about **2-5 minutes** ask them not to touch the objects in front of them. Instead let them know that for the next 10 minutes you'd like them to quietly draw what they see in front of them with their pencil. It does not have to be their best work but they should take the time to be sure they've included all the objects as they see in front of them encouraging them to point out what objects are next to each other, use words like right and left, and words like besides. After **10 minutes** ask if anyone would be willing to show their drawing. Allow a few students to show their drawing then point out (or encourage students if they start to point out) how two students who drew the same objects ended up with different drawings. Encourage discussion for **5-7 minutes**. Wrap up the discussion by explaining that what we see on the table depends on how we are positioned in our chair. Demonstrate by having two students at the same table switch seats and explain what they see. Let the students know that today while we do our lesson anytime we are talking about where an object is on the table we will use the word "position".

Accommodation Note: If students struggle with grasping the language use for positioning less time may be allotted to drawing and a few moments taken to brainstorm how we describe the position of objects. Instead of giving students the answer be sure to repeat back the observations they are making. You can also consider making a list of words and phrases to describe position for students to reference if it appears they are not grasping the language for any reason.

Questions: If you're having trouble getting the students to talk try asking questions like "how did the position of the object change based on where you viewed it?" "What would you see if you switched seats?" "Why is the apple in your drawing on the left but on the right in someone else's?" etc.

Main Activity

Draw on the board a simple chart for students to copy down on their paper. On the left side of chart it should say "objects". In the middle of the chart it should say "position". On the right hand side it should say "how it moved". This should take **1-2 minutes** to copy down.

Accommodation Note: If some students find it too difficult to write down their observations you

may encourage them for an accommodation or as differentiated teaching allowing them to draw the objects in relation to each other and list how they moved. This would still meet the curriculum outcomes and could be measureable for assessment.

Encourage the students in their groups to choose two of the objects each on the table. (If there are not enough have students work in pairs within their group) Record what the objects are on the left hand side of their charts either through text or drawing, and record their position. Then encourage students to use one of the objects to push the other and move it around! Ask them to make notes about how their objects moved. Allow students **10 minutes** to do this.

Questions

While students are enjoying this opportunity to manipulate objects, walk around the room and make observations. Present the students with questions to curb their thinking process and allow for problem solving. Some questions you may ask may be "What happens if you push your objects from this area?" "How do the objects move individually?" "Can you push AND pull your objects? Alone or together?"

Accommodation Note: If you see some students aren't interested or are having trouble focusing encourage them to move to a different group, they may not be stimulated by the objects in front of them or the objects may be too "out of the box" for them to feel comfortable trying.

Closure

Invite students to share some of their observations from what they've written down and bring up the questions you asked while circulating the room. Encourage them to hold up their objects and demonstrate their observations if they want to/are able to. Ask them if they were surprised by anything they saw. Finally, explain that for the next while in science we will be learning more about positions of objects and motion. **5 minutes**

Follow up/ Extension

For homework students can take home the previously mentioned car sheet to fill in. Students can also be encouraged to write a science journal about their experience with the objects with encouragement on using the vocabulary presented in class. Another homework activity could be to have students recreate the activity at home with two new objects and record their observations using the chart method.

Assessment strategies

The teacher can make some assessments informally through observations of how the students do the group work. Are they grasping the concepts of pushing and pulling? Does their group

conversation demonstrate an understanding of position? Are they engaged and participating?

Formal assessment can take place through examining the student's observation charts. What words are they using? Are their drawings clear examples? Homework will also help gauge the student's understanding of position through the car worksheet and journal reflections.

Modifications

If students are not grasping the material based on the assessment a word bank for position may be provided on the board or somewhere in the classroom students can reference for the duration of the unit. The activity can be repeated with less intimidating objects such as math manipulative and more opportunity for reflection can be given. More worksheets may also aide for those who need the visual representation.

Connections

This lesson should help students start to think about perspective in terms of position. It can be linked to real world situations in art, construction (many boys love dump trucks), automotive (watching trains etc.), and even toys.