

A-Push or Pull

Group Members:

B-Steep

Ramp Height	Distance Jeep Travels		
Low			
High			

SHEEP IN A JEEP



C-Sandpaper

D-Seatbelt

Floor	Distance Jeep Travels		
Tile			
Sand-paper			

A-Push or Pull

Group Members:

B-Steep

SHEEP IN A JEEP



C-Sandpaper

D-Seatbelt

## **ENLARGE THESE RECORDING SHEETS TO 11x17**

### **Lesson Outline: (Adapted from NSTA's Picture Perfect Science series, to go with the book Sheep in a Jeep by Nancy Shaw)**

Intro objectives to students:

- to investigate forces as a push or a pull
- to conduct a fair trial
- to record, think about and discuss results of an experiment

Story has been read by teacher previously.

- have students review the story
- pull out vocabulary words to review

K/1: jeep, push, pulls, force, sheep, steep, slows, speeds

2/3: above plus: motion, friction, gravity, inertia (?)

Part A

Place sheep in jeep. Tape sheep in place. Push jeep up ramp. Let jeep roll down ramp

- Make observations on large paper
- Discuss

Part B

Discuss aspects of a fair trial. (Same starting point, 3 tries at each height at least, what if it rolls off the edge—try again)

Then:

Compare the distance rolled down the ramp with 1 book holding it up, vs. 2 books holding it up.

Students record observations on large sheet. K/1—may come up with their own way to measure; 2/3 using meter sticks and filling in chart . If appropriate, students can average the 3 trials

Discuss with these questions:

- How did your trials go?
- Did the jeep roll a shorter or longer distance when you raised the ramp?
- Would the jeep roll longer or shorter if we put one more book on it?
- What would you change if you were doing this again?

Make a conclusion on your sheet—how does the height of the ramp affect the distance the jeep rolls?

### Part C

With the ramp at two books, do 3 more trials of the regular floor surface. Then place the sandpaper at the end of the ramp. Do 3 trials. K-1 can decide how to keep track. 2-3 can measure with meter sticks and fill in their chart.

Discuss with these questions:

- Did the jeep roll a shorter or longer distance when it had to go over sandpaper?
- Why do you think this happened?

Write a conclusion on your sheet—how does the type of floor material affect the distance the jeep rolls?

### Part D (If time allows)

Remove the sandpaper. Place a block or a book 20 cm (3 foot lengths) from the end of the ramp. Roll the sheep in the jeep down the ramp so that it hits the book. Observe and record.

Remove the tape holding the sheep. Roll the sheep in the jeep down the ramp so that it hits the book. Observe and record.

Discuss with these questions:

What happened when the sheep in the jeep hit the book?

Why was it different after the tape was removed?

How might this relate to something in your everyday life? (HINT: Seatbelts)

Kindergarten/Grade 1—Observation of Curricular Competencies in a Lesson

CC's in the Sheep In A Jeep Lesson	Observation of S's using these
<p><b>Questioning and predicting</b></p> <ul style="list-style-type: none"><li>• Demonstrate curiosity and a sense of wonder about the world</li><li>• Observe objects and events in familiar contexts</li><li>• Ask simple questions about familiar objects and events</li></ul>	
<p><b>Planning and conducting</b></p> <ul style="list-style-type: none"><li>• Make exploratory observations using their senses</li><li>• Safely manipulate materials</li><li>• Make simple measurements using non-standard units</li></ul>	
<p><b>Processing and analyzing data and information</b></p> <ul style="list-style-type: none"><li>• Discuss observations</li><li>• Represent observations and ideas by drawing charts and simple pictographs</li></ul>	
<p><b>Communicating</b></p> <ul style="list-style-type: none"><li>• Share observations and ideas orally</li></ul>	

Grade 2—Observation of Curricular Competencies in a Lesson

CC's in the Sheep In A Jeep Lesson	Observation of S's using these
<p><b>Questioning and predicting</b></p> <ul style="list-style-type: none"> <li>• Demonstrate curiosity and a sense of wonder about the world</li> <li>• Observe objects and events in familiar contexts</li> <li>• Ask simple questions about familiar objects and events</li> <li>• Make simple predictions about familiar objects and events</li> </ul>	
<p><b>Planning and conducting</b></p> <ul style="list-style-type: none"> <li>• Make exploratory observations using their senses</li> <li>• Make and record observations</li> <li>• Safely manipulate materials to test ideas and predictions</li> <li>• Make and record simple measurements using informal or non-standard methods</li> </ul>	
<p><b>Processing and analyzing data and information</b></p> <ul style="list-style-type: none"> <li>• Discuss observations</li> <li>• Represent observations and ideas by drawing charts and simple pictographs</li> <li>• Sort and classify data and information using drawings, pictographs and provided tables</li> <li>• Compare observations with predictions through discussion</li> <li>• Identify simple patterns and connections</li> </ul>	
<p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Compare observations with those of others</li> </ul>	
<p><b>Communicating</b></p> <ul style="list-style-type: none"> <li>• Share observations and ideas orally</li> <li>• Communicate observations and ideas using oral or written language, drawing, or role-play</li> </ul>	

Grade 3—Observation of Curricular Competencies in a Lesson

CC's in the Sheep In A Jeep Lesson	Observation of S's using these
<p><b>Questioning and predicting</b></p> <ul style="list-style-type: none"> <li>• Demonstrate curiosity and a sense of wonder about the world</li> <li>• Observe objects and events in familiar contexts</li> <li>• Identify questions about familiar objects and events that can be investigated scientifically</li> <li>• Make predictions based on prior knowledge</li> </ul>	
<p><b>Planning and conducting</b></p> <ul style="list-style-type: none"> <li>• Suggest ways to plan and conduct an inquiry to find answers to their questions</li> <li>• Safely manipulate materials to test ideas and predictions</li> <li>• Make and record simple measurements using informal or non-standard methods</li> <li>• Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate</li> </ul>	
<p><b>Processing and analyzing data and information</b></p> <ul style="list-style-type: none"> <li>• Discuss observations</li> <li>• Identify simple patterns and connections</li> <li>• Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends</li> <li>• Compare results with predictions, suggesting possible reasons for findings</li> </ul>	
<p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Compare observations with those of others</li> <li>• Make simple inferences based on their results and prior knowledge</li> <li>• Reflect on whether an investigation was a fair test</li> <li>• Demonstrate an understanding and appreciation of evidence</li> </ul>	
<p><b>Applying and innovating</b></p> <ul style="list-style-type: none"> <li>• Transfer and apply learning to new situations</li> </ul>	
<p><b>Communicating</b></p> <ul style="list-style-type: none"> <li>• Represent and communicate ideas and findings in a variety of ways, such as diagrams and simple reports, using digital technologies as appropriate</li> </ul>	