

# Load Them Up

## Procedure

- 1. Collaborate** Work with a partner. Set a paper cup on the floor and fill it with rocks. Slide a spool onto a pencil. Tape one end of the pencil to the edge of a table. Drape a string over the spool.
- 2. Hypothesize** On the lines below, write a hypothesis about whether it will be easier to lift the cup of rocks by hand or by using the string and spool.

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- 3. Experiment** Using only your hands, lift the cup of rocks from the floor to the spool. Observe how much effort you use to lift the rocks. Record your observations on the lines below.

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- 4. Experiment** Attach one end of the string to the cup. Set the cup on the floor again. Slowly pull on the other end of the string to lift the cup all the way up. Observe your effort. Record your observations below.

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## Conclusion

Write the answers to the questions below.

1. **Analyze Data** In which direction did you pull when you lifted the rocks by hand? In which direction did you pull when you used the string and spool?

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2. **Compare** Was it easier to lift the cup of rocks with your hands or with the string and spool?

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## Investigate More!

**Be an Inventor** Design a machine that makes lifting the cup of rocks even easier. What parts will the machine have? How will it move? How will you control it? Draw a picture of your machine in the space below.