

Building Physical Intuition – Stacked Blocks

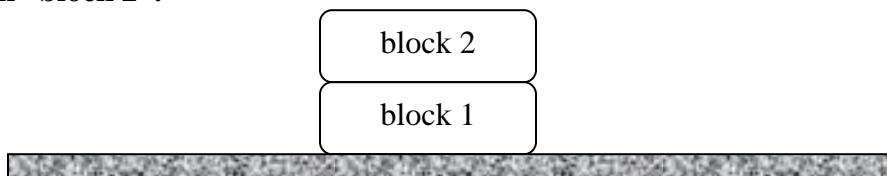
The goals of this activity are to continue to develop your observation skills and to begin to become aware of forces (pushes and pulls) and their effects on objects. You will make predictions, test your predictions, and explain differences between your predictions and your observations. Use your results to make predictions about new situations.

Students should work in pairs.

Equipment: Each pair of students will need five wooden blocks and a writing instrument with an eraser for pushing a block.

Each group member should record all predictions and observations in ink.

Part A. Stack two blocks on the table as shown. Call the bottom block “block 1” and the top block “block 2”.



1. Predict what will happen when you push softly/slowly on the end of block 2.

Push softly/slowly on the end of block 2. Record your observations below.

Did your observations agree with your predictions? If they did not agree, can you offer an explanation?

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2. Predict what will happen when you push softly/slowly on the end of block 1.

Push softly/slowly on the end of block 1. Record your observations below.

Did your observations agree with your predictions? If they did not agree, can you offer an explanation?

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3. Predict what will happen when you push hard/fast on the end of block 1.

Push hard/fast on the end of block 1. Record your observations below.

Did your observations agree with your predictions? If they did not agree, can you offer an explanation?

Did block 2 move forward or backward relative to block 1?

Did block 2 move forward or backward relative to the table?

4. Discuss the differences in the results of 1, 2, and 3. Explain why these differences occurred.

Part B. Stack a third block (block 3) on top of block 2.

1. Predict what will happen when you push softly/slowly on block 2.

Push softly/slowly on the end of block 2. Record your observations below.

Did your observations agree with your predictions? If they did not agree, can you offer an explanation?

2. Predict what will happen when you push hard/fast on block 2.

Push hard/fast on the end of block 2. Record your observations below.

Did your observations agree with your predictions? If they did not agree, can you offer an explanation?

Part C. Stack two additional blocks on top of blocks 1, 2, and 3. Feel the difference in the forces required to slide different blocks. For example, how much harder or easier is it to slide block 2 than to slide block 5 (top block)? Hypothesize what factors are responsible for your results.

Record your observations, hypotheses, and any additional comments.

Part D. If time permits, develop some additional experiments. Make predictions and test them.

Record your observations, hypotheses, and any additional comments on a separate paper.