Grade 4
RM 5: Designing an Experiment Assessment

Read the following experiment.

A group of students wants to know if a toy car will travel farther on carpet or tile. Their teacher asks them to design an experiment to answer the question. Here is what the students wrote.

Question: Will a toy car travel farther on carpet or tile?

Hypothesis/Prediction: A toy car will travel faster on tile because it is smoother than carpet and will have less friction.
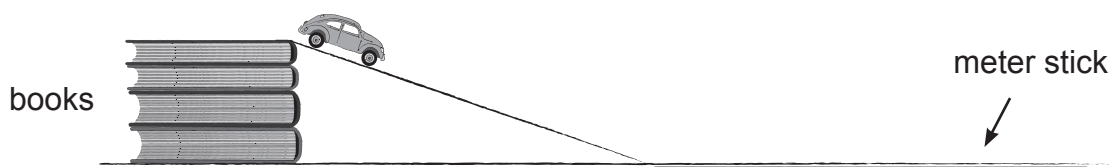
Materials

- toy car
- 4 books, same size
- ramp
- carpeted area
- tiled area
- 2 meter sticks

Procedure

Part A

1. Find an area of floor covered with carpet.
2. Stack four books of the same size squarely on top of each other.
3. Set the ramp on the edge of the books.
4. Lay the meter sticks on the floor on either side of the ramp.
5. Place the toy car at the top of the ramp.
6. Release the toy car and record in the table the distance it travels.
7. Repeat steps 5–6 two more times.

books

meter stick

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Part B

1. Find an area of floor covered with tile.

2. Stack two books of the same size squarely on top of each other.

3. Set the ramp on the edge of the books.

4. Lay the meter sticks on the floor on either side of the ramp.

5. Place the toy car at the top of the ramp.

6. Release the toy car and record in the table the distance it travels.
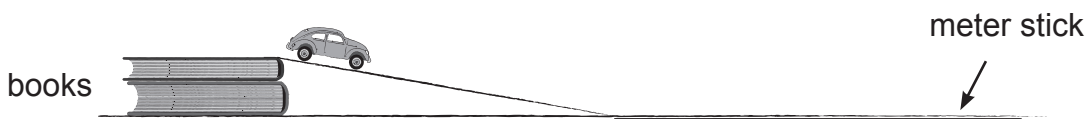
7. Repeat steps 5–6 two more times.

Data

Type of Flooring	Height of Ramp	Distance Car Traveled in Centimeters (cm)		
		Trial 1	Trial 2	Trial 3
carpet	4 books tall	2	36	34
tile	2 books tall	27	28	35

Results: The toy car traveled farther on carpet.

Conclusion

1. What did the students do correctly?

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2. What could the students have done better?

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3. Based on the experiment, is the students' hypothesis supported by their data, and did they design the experiment to find a true answer to their question? Why or why not?

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