Domino Data Dash

Grades 3-5

Overview

In this activity, learners investigate how different factors affect the way dominoes fall. Learners will design sequences, make predictions, and measure fall times while focusing on one variable at a time, such as spacing, line shape, pattern complexity, or surface. By keeping the number of dominoes constant, learners can see how each factor influences the results and learn how to conduct fair, controlled experiments.

NB Curricular Connections

3-5 Learning Areas
Science 3-5 ○ Strand: Scientific Literacy Big Idea: Sensemaking Skill Descriptor: Analyze data to construct explanations and conclusions based on evidence from scientific inquiry. ○ Strand: Scientific Literacy Big Idea: Communication Skill Descriptor: Communicate procedure, result, and conclusion of scientific inquiry using a variety of media.
Math 3-5 ○ Strand: Statistics and Probability Skill Descriptor: Investigate and represent firsthand data. ○ Strand: Shape and Space Skill Descriptor: Read and record time using digital and analog clocks.

What You'll Need

- Dominoes (at least 20 per group)
- Ruler or measuring tape
- Stopwatch or timer
- Pencils and markers
- Data sheets

Instructions

Step 1 – Introduction

- Demonstrate a chain reaction with dominoes. Line up 5 to 10 dominoes in a straight row, then gently push the first one to start a chain reaction. As the dominoes fall, use a timer to record how long it takes for all of them to topple.
- Change one thing (e.g., move them closer together or further apart, put them on a rough surface, or make a zigzag). Ask students what they predict will happen. Push dominoes again and time the fall.

- Discuss with your group: What happened? Why do you think it happened? What other changes could be measured and tested?

Step 2 - Setup

- Place students into groups of 3-4.
- Each group receives a matching number of dominoes, a ruler or tape measure, a stopwatch or timer, a domino data sheet, and pencils.
- Each group receives a data template (see attached).

Decide on the Variable to Test

- Keep the number of dominoes constant (e.g., 20).
- Each group picks one variable to change.

Some examples include:

    - Spacing: 1.0 cm, 1.5 cm, 2.0 cm
    - Line shape: straight line, zigzag, gentle curve
    - Surface: smooth, rough
    - Pattern of spacing: constant vs. gradually increasing spacing
    - Starting push: light tap vs. firm tap
- Record the exact values your group will test.

Step 3 - Make a Prediction (Hypothesis)

- Have students predict how changing one variable will affect the total fall time of the dominoes. Each group member should give a brief explanation of their reasoning, either in writing, verbally, or through speech-to-text, before testing their ideas.

If we change [variable] from [value A] to [value B], then the total fall time will (increase/decrease/stay about the same) because [reasoning].

Step 4 - Set Up Dominoes and Run Trials

- Set-up Tips:

Remind learners to ensure everything stays the same from trial to trial, except for the one variable they are testing. This ensures that any changes they observe are caused only by the variable, not by other differences in the setup.

Timing Tips:

- Start the stopwatch or timer at the first movement of the first domino.
- Stop the stopwatch or timer when the last domino finishes falling.
- Repeat until you have 3 clean trials.

- Record your times in the Domino Data Sheet.

Step 5 – Analyze Results

- Compare results between different variables.
- Create a graph to show results.
- Answer reflection questions:
  - Did results match your prediction?
  - What trends do you notice?
  - What factors may have influenced your results?

Step 6 – Test Another Variable

- Once you complete one series of trials, choose a new variable to test.
- Repeat Steps 3–5 with the new setup.

Examples of variables that could be used.

Variable Tested	Trial 1 (s)	Trial 2 (s)	Trial 3 (s)
Spacing 1 cm			
Spacing 1.5 cm			
Spacing 2 cm			

Variable Tested	Trial 1 (s)	Trial 2 (s)	Trial 3 (s)
Straight Line			
Light Curve			
Zig Zag			

Variable Tested	Trial 1 (s)	Trial 2 (s)	Trial 3 (s)
Tile			
Foam Mat			
Pavement			

Reflection Activity

Please see attached.

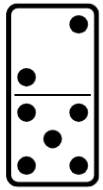
Name: Date: Class:

Domino Data Dash

VARIABLE TESTED	TIME TRIAL #1 (S)	TIME TRIAL #2 (S)	TIME TRIAL #3 (S)

Name: Date: Class:

Domino Data Dash



VARIABLE TESTED	TIME TRIAL #1 (S)	TIME TRIAL #2 (S)	TIME TRIAL #3 (S)