Chain Reaction Machine

SD-B129 / STRATEGISTS · AGES 10–12

Design a five-step chain reaction to solve a silly problem.

YOU NEED: Pencil; household objects for optional building

ANALYZE	Choose a silly problem to solve, like turning off a light or ringing a bell.
CHOOSE	Plan five steps where each step triggers the next. Sketch the sequence.
TEST	Try to build one or two steps with real objects. Does the push pass on?
REFLECT	Which link is weakest? How would you fix it?

THE FIVE-STEP MACHINE

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5

The problem it solves

My machine will

The weakest link

The weakest step is

I would fix it by

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A little help beside the learner. Read this page first; keep the answers here.

LEARNING GOAL
Practice designing a system, thinking in sequence and testing links.

BEFORE YOU BEGIN
You need: Pencil; household objects for optional building. Use light objects away from breakables and sharp edges.

HOW TO GUIDE
Keep the objects light and safe: books, cups, balls. A grown-up supervises any test. If a link fails, ask what energy or push is passed from one step to the next.

WHY IT MATTERS
A chain of causes is a simple model of a system. Testing links shows how one weak part can stop the whole thing.

LOOK FOR THIS REASONING
Look for steps in an order that makes sense, each caused by the one before, and a weak link that is named.

IF THEY GET STUCK
Ask: what makes the first thing move? What does it hit? What would happen then?

MAKE IT GENTLER
Plan only three steps.

ADD A LITTLE STRETCH
Build the full machine and time it.

A USEFUL STOPPING POINT
Challenge someone to find the weakest link.