Magnets and Engineering Design

Grade 3 Science Worksheet - Challenge Me

Name _____ Date _____

Circle the answer.

1. A magnet latch on a cabinet is so strong that children cannot open it. Which change would help?
   make the door heavier
   turn the magnets so like poles face
   use a weaker magnet or add a thin spacer
   use two stronger magnets

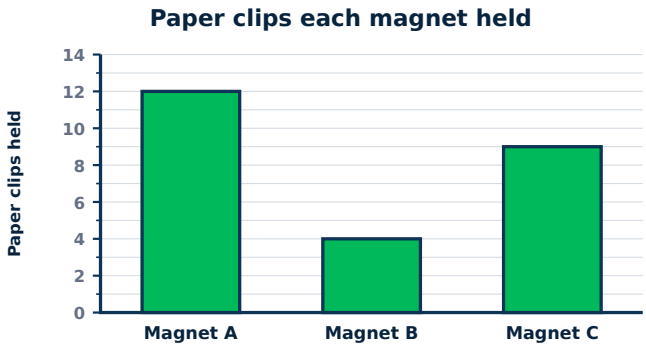
2. Which test result shows that distance changes magnetic force?
   a clip jumps to the magnet at 1 cm but not at 6 cm
   a clip moves the same at 1 cm and at 6 cm
   a clip sticks to two different magnets
   a magnet sticks to a steel door

3. A toy car has a magnet on its back. A student pushes the car forward by holding a magnet behind it without touching. Which poles must face each other?
   any poles, since poles do not matter
   opposite poles, so the car is pushed away
   opposite poles, so the car is pulled back
   the same poles, so the car is pushed away

4. Engineers test three latch magnets. Each must hold a door shut but open with a pull of less than 10 units. Magnet A needs 4 units, B needs 8, C needs 15. Which magnets meet the goal?
   B and C A and B A only C only

5. A class must design a gate latch that stays shut in wind but opens with a gentle pull. Which design fits best?
   two magnets with like poles facing
   a heavy rock in front of the gate
   two magnets with opposite poles facing, on the gate and the post
   strong glue on the gate

6. A sorting tool must lift at least 8 paper clips at once. Use the graph. Which magnets could be used?



A and C B and C A only A, B and C

7. A recycling plant has steel and aluminum cans mixed. After a magnet lifts out the steel cans, what is left on the belt?
steel and aluminum cans the aluminum cans no cans at all only steel cans

8. A magnet holds a sign through a door 1 cm thick but falls off a door 4 cm thick. What should the engineers try next?
a smaller magnet
the same magnet with thicker wood
a stronger magnet or a thinner door
two magnets with like poles facing

9. A student says magnetic force can pass through materials. Which test supports this?
a magnet moves a clip through a sheet of cardboard
a magnet picks up a nail it touches
a magnet sticks to a steel desk
two magnets push apart

10. Two magnets push apart. A student flips one magnet, and now they pull together. What does this show?
the magnet lost its pull
which poles face each other decides push or pull
magnets only pull, never push
flipping makes a magnet stronger

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Answer Key - Grade 3 Science Worksheet - Challenge Me

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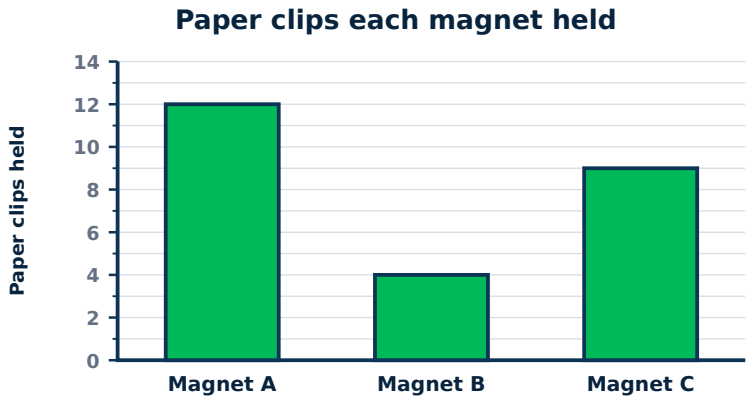
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