Magnets and Engineering Design

Grade 3 Science Worksheet - Challenge Me

Name _____ Date _____

Circle the answer.

1. 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

   the same poles, so the car is pushed away

   opposite poles, so the car is pulled back

   opposite poles, so the car is pushed away

2. 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?

   A only A and B C only B and C

3. A class must design a gate latch that stays shut in wind but opens with a gentle pull. Which design fits best?

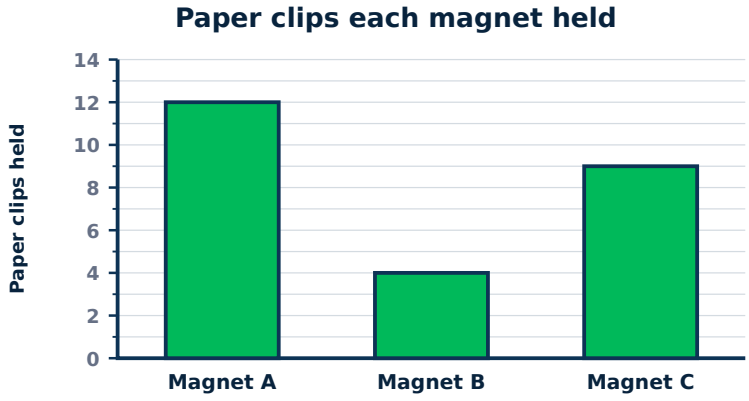
   two magnets with opposite poles facing, on the gate and the post

   a heavy rock in front of the gate

   strong glue on the gate

   two magnets with like poles facing

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



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

5. A recycling plant has steel and aluminum cans mixed. After a magnet lifts out the steel cans, what is left on the belt?

   the aluminum cans no cans at all steel and aluminum cans only steel cans

6. 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

a stronger magnet or a thinner door

two magnets with like poles facing

the same magnet with thicker wood

7. 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 sticks to a steel desk

two magnets push apart

a magnet picks up a nail it touches

8. Two magnets push apart. A student flips one magnet, and now they pull together. What does this show?

which poles face each other decides push or pull

magnets only pull, never push

the magnet lost its pull

flipping makes a magnet stronger

9. A balloon rubbed on wool bends a thin stream of water without touching it. Which other force also acts without touching?

the pull of a rope magnetism a push from a hand friction

10. A bag of iron nails and wooden beads spilled together. Which plan separates them fastest?

pick out each bead by hand

shake the pile in water

sweep a magnet over the pile to lift the nails

blow on the pile to move the nails

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Answer Key - Grade 3 Science Worksheet - Challenge Me

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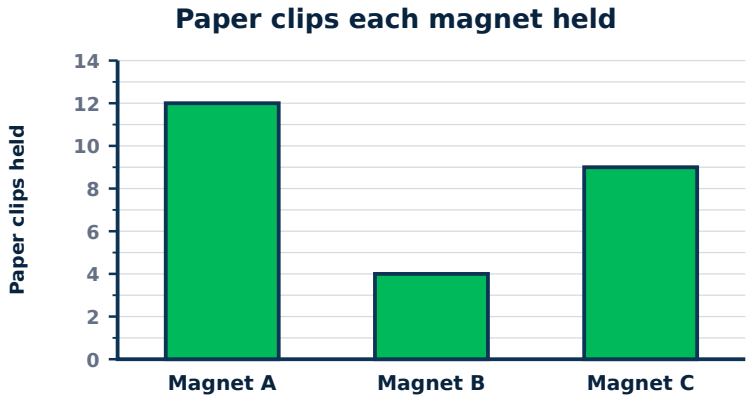
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