Magnets and Engineering Design

Grade 3 Science Worksheet - Challenge Me

Name _____ Date _____

Circle the answer.

1. 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

2. 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?

   two magnets with like poles facing

   a stronger magnet or a thinner door

   a smaller magnet

   the same magnet with thicker wood

3. A student says magnetic force can pass through materials. Which test supports this?

   a magnet picks up a nail it touches

   a magnet moves a clip through a sheet of cardboard

   a magnet sticks to a steel desk

   two magnets push apart

4. 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

5. 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 a push from a hand magnetism friction

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

   blow on the pile to move the nails

   sweep a magnet over the pile to lift the nails

   pick out each bead by hand

   shake the pile in water

7. A magnet latch on a cabinet is so strong that children cannot open it. Which change would help?

use two stronger magnets

use a weaker magnet or add a thin spacer

make the door heavier

turn the magnets so like poles face

8. Which test result shows that distance changes magnetic force?

a clip moves the same at 1 cm and at 6 cm

a clip jumps to the magnet at 1 cm but not at 6 cm

a clip sticks to two different magnets

a magnet sticks to a steel door

9. 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 pulled back

opposite poles, so the car is pushed away

the same poles, so the car is pushed away

10. 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?

C only A and B A only B and C

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Answer Key - Grade 3 Science Worksheet - Challenge Me

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C only | A and B | A only | B and C