

# Magnet Assembly

Assemble magnets and washers to match patterns on printed cards.  
Pattern difficulty increases from Level 1 to Level 3.

## Materials

- 1 storage bin
- 1 clear plastic snap box
- 1 divided bin
- 1 small bin
- 24 boxed clear plastic tubes
- 24 plastic caps
- 24 wooden posts
- 48 rubber stoppers
- 60 metal washers
- 72 magnets in 6 colors
- 48 printed cards:
  - 24 Level 2 cards
  - 24 Level 3 cards



## Setup

Place the snap box with the cards on the table to the left. Place the wooden posts, rubber stoppers and metal washers in the divided bin in that order, and place it to the right of the snap box. Open the box of clear tubes and place it to the right of the divided bin. Place the plastic caps in the small bin and put it to the right of the box of tubes. Remove the magnets from their storage tubes and position them in stacks according to color in a line in front of the tube box. Put the magnet storage tubes into the tube box and their caps into the caps bin.

## Procedure

### Level 1: Assemble Attracting Magnets and Washers

*Setup: Set aside the cards, snap box, clear tubes and caps.*

- Take two magnets of the same color and stick them together.
- Take a metal washer and place it on one end of the colored magnets.
- Take another metal washer and place it on the other end of the magnets.
- Place the assembled magnets and washers on the table to the far right of the work area.
- Repeat until all washers are gone.

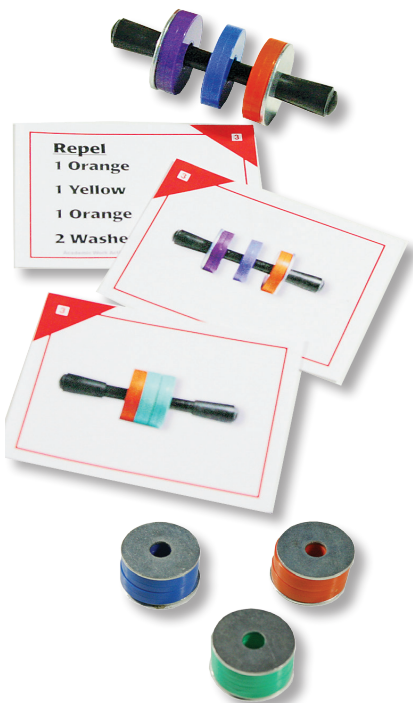
### Level 2: Assemble Attracting and Repelling Magnets and Washers

*Setup: Select the blue-labeled cards and place them in the open snap box at the left. Set the other cards aside. For the basic level, place the cards with the picture of the magnet assembly face up. For more difficulty, place the cards with the instructions face up. Set up all the other components as detailed above.*

- Take the top card and place it on the table in front of you. Take a wooden post and place a rubber stopper on one end.
- Slide magnets or washers onto the open end of the post according to the pattern or instructions on the card. Complete the assembly with rubber stopper on the open end.
- Place the completed assembly in one of the clear tubes and cap it securely with a plastic cap.
- Place the card on the table to the far right of the work area and place the tube with the complete assembly on top of the card.
- Repeat until all cards are gone.

## Quality Criteria

The magnet assemblies in Level 2 and 3 must correctly match the pattern on the card, attracting and repelling properly and in the proper colors.





### Level 3: Assemble Triple Combinations of Magnets and Washers

*Setup: Select the red-labeled cards and place them in the open snap box at the left. Set the other cards aside. For the basic level, place the cards with the picture of the magnet assembly face up. For more difficulty, place the cards with the instructions face up. Set up all the other components as detailed on the reverse side.*

- Take the top card and place it on the table in front of you. Take a wooden post and place a rubber stopper on one end.
- Slide magnets or washers onto the open end of the post according to the pattern or the instructions on the card. Complete the assembly with rubber stopper on the open end.
- Place the completed assembly in one of the clear tubes and cap it securely with a plastic cap.
- Place the card on the table to the far right of the work area and place the tube with the completed assembly on top of the card.
- Repeat until all cards are gone.



### Variations with Magnet Assembly

#### Other assemblies:

- Experiment with the attract and repel properties of the magnets and assemble magnets and washers on posts. Or use the magnets and washers without the posts to make interesting and colorful structures.

#### Connect the assemblies:

- Connect the assemblies together using the attract and repel properties of the magnets to form chains.

## Disassembly

A different person should disassemble the task. In all cases, a task will need to be disassembled after each level is completed before another assembly task can be done.

### Setup

Place bins and supplies as in the assembly task.

### Procedure - All Levels

- Take a tube of magnets from the table.
- Remove the plastic cap and place it in the small bin.
- Remove the magnet assembly from the tube and place the tube in the box.
- Pull a stopper off one end of the post and place it in the middle compartment of the divided bin.
- Remove the washers and magnets. Place any washers in the right compartment of the divided bin and stack the magnets by color in front of the tube box.
- Remove the stopper from the other end of the post and place it in the middle compartment of the divided bin. Place the post in the first compartment of the divided bin.
- Place the card in the snap box.
- Repeat until all magnets are disassembled.

