



# Making a Model Showing How Vaccines Work in the Immune System

**Big Question:** How do vaccines help our immune system protect us from disease?

## GOAL

To create a model that shows how vaccines teach the immune system to recognize and fight germs.

## YOU'LL NEED

- Red pom-poms (germs/viruses)
- Blue or green pom-poms (vaccine – inactive germs)
- Y-shaped pieces (antibodies) – use pipe cleaners, cardboard cut-outs, or craft foam
- Small cup or bowl (body)
- Labels or sticky notes
- Marker



Germ (virus)



Vaccine (inactive germ)



Antibody



## KEY IDEA

Vaccines use a safe, inactive form of a germ to teach the immune system to recognize it. Then, if the real germ ever enters the body, the immune system can quickly make antibodies to fight it off and keep us from getting sick.



## PROCEDURE

1. This model will have two parts:  
Part A: What happens after a vaccine  
Part B: What happens when the real germ enters later
2. Use the items and steps below to act out and model how vaccines work in the immune system.

### 1 Vaccine Enters the Body

Put the blue pom-poms (vaccine) into the cup (body). These are inactive germs—safe, but they look like the real germ.



VACCINE  
(inactive  
germ)

### 2 Immune System Learns

Add Y-shaped pieces (antibodies) to the cup. The immune system sees the vaccine and makes antibodies to remember it.



Antibodies  
made

### 3 Real Germ Enters Later

Add red pom-poms (real germs) to the cup. They try to invade the body.



Real germ  
enters

### 4 Immune System Fights Back

The antibodies recognize the real germ and stick to it, neutralizing or destroying it. You stay healthy!



Antibodies  
fight the  
germ!

**Optional:** Label each step with sticky notes or draw a diagram of your model.



## THINK & DISCUSS

1. What was the role of the vaccine in the model? \_\_\_\_\_
2. What did the antibodies do when the real germ entered? \_\_\_\_\_
3. How does this model show why vaccines help prevent disease? \_\_\_\_\_



## WHAT I LEARNED

Write a short summary of what this experiment showed you about how vaccines work.

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**Remember:** This is a model to help us understand a real process in the body.