

VFT FAMILY VIEWING PARTY

OVERVIEW

Did you know that it can take up to ten years from the initial discovery phase to the time a medication actually becomes available for public use? Or that out of every 5,000 potential ideas, only five new medicines make it to human trials and that, on average, only one of those five will make it to the pharmacy? Your family will discover the fascinating science involved in the pursuit of a new medication during the Generation Health Virtual Field Trip!

The two activities on the following pages are designed to be completed, one before and one after you view the Virtual Field Trip. They will help your family engage in and connect with what you'll learn.

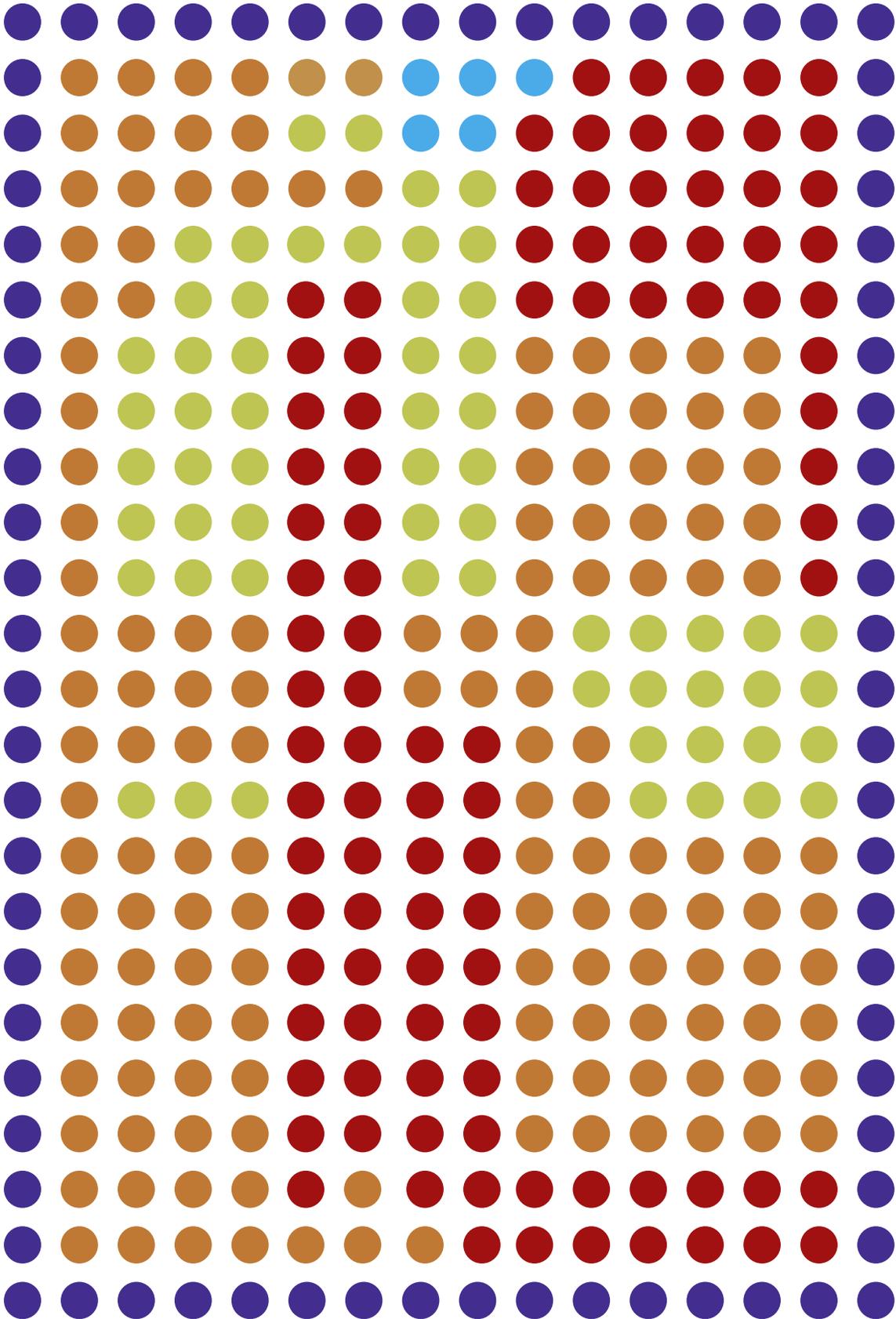
PRE-VIRTUAL FIELD TRIP ACTIVITY: BULLSEYE!

During the virtual field trip, you will learn about **Antibody Drug Conjugates (ADCs)** and how their development can help cancer patients who are receiving chemotherapy treatment. You will also learn about how important conducting multiple **trials** is to creating an effective medication.

To kickstart your understanding before you view the film, print the grid on the following page. Hang it with tape or a pushpin on a surface that will not be damaged if you throw things at it! With a sharpened pencil, each member of the family should try to aim and hit the light blue dots on the grid from about five feet away. Take multiple tries and keep track of how often you are successful. Do you feel like this is an effective method of eradicating the light blue dots?

Now, work together to try to adapt your pencil or find a different aiming agent that you feel would work more successfully. Conduct another trial, throwing the same number of times as the first trial from the same distance and keeping track of how often you are successful. Were you able to hit your target more often?

This process mimics—in a very basic way—the trials that scientists conduct to find new medications and treatments for diseases like cancer!



POST-VIRTUAL FIELD TRIP ACTIVITY: THE SCIENTIFIC METHOD

You just learned about the important role that the **scientific method** plays in things as simple and fun as figuring out what's in a box, to things as complex and important as finding a cure for cancer. The scientific method is an effective problem-solving technique that can be adapted to all sorts of situations and, as a family, you'll apply it to the following experiment. You can use the Lab Notes sheet on the following page to record your findings!

Gummy bears are a delicious snack, but they are also going to be the main material we use to answer our question: "What happens to a gummy bear when it is placed into different solutions?" Before you begin your experiment, you'll want to take some observation notes on the gummy bears. Measure their length and width, note how much they weigh and their color, comment on their appearance, and note their general size. Then, you'll be ready to use the scientific method!

Safety Note: *While gummy bears are delicious, never eat materials from a scientific experiment! (But, if it is okay with your family, munch away on the extras!)*

First, you will need to create four solutions in which to soak your gummy bears:

1. Water
2. 1 tsp of salt + 1 cup of water
3. 1 tsp of vinegar + 1 cup of water
4. 1 tsp of baking soda + 1 cup of water

Conduct some background research on each of these solutions and their effects on different foods or materials, or on the reaction of gelatin or chewy candies to liquid solutions.

Based on your research, work with your family to develop a hypothesis about what you think will happen to your gummy bears when soaked in each of the solutions. To test your hypothesis, drop a gummy bear into each solution and set it aside for 24 hours. Observe and record any changes you see and set aside for another 24 hours. At the conclusion of the two days, observe and record the state of your gummy bears. If possible, redo the measurements and observations you first made before you started.

Next, analyze your data. Which solutions changed the gummy bears' length and width, their weight or size, or their color or appearance? Draw conclusions about the effect of each solution based on your data and observations.

Discuss your findings as a family. Was your hypothesis correct? Were there any variables that might have affected your results? Do you need more trials to be sure?

What a fun (and delicious!) way to practice using the scientific method as a family!

Scientific Method

1. Ask a question
2. Background research
3. Form a hypothesis
4. Test the hypothesis
5. Analyze the data
6. Draw conclusions
7. Share your findings



SCIENTIFIC METHOD GUMMY BEAR LAB NOTES

Question: What happens to a gummy bear when it is placed into different solutions?

Initial Observations of Gummy Bears:

Background Research:

Your Hypothesis: _____

Test Your Hypothesis: Using the tables on the following page, record your data and observations over the next 48 hours.

Analyze Your Data and Draw Conclusions:



SCIENTIFIC METHOD GUMMY BEAR DATA CHARTS

Water

Day	Length & Width	Weight	Color & Appearance
1			
2			

Salt + Water

Day	Length & Width	Weight	Color & Appearance
1			
2			

Vinegar + Water

Day	Length & Width	Weight	Color & Appearance
1			
2			

Baking Soda + Water

Day	Length & Width	Weight	Color & Appearance
1			
2			