

# Match It with Science Journal

*Be a scientist and a sleuth in this data-matching exercise. In this experiment, testers will explore various silly sound makers, such as squeaky toys, jingling shakers and tissue paper. They will use the Science Journal app and sound sensor as investigative tools to see if they can match the pre-rendered sound graphs.*

**Activity Duration:** 10-15 minutes

**Age Recommendation:** 7+

## Tools and Materials:

- Smartphone with the Science Journal app
- Protective phone case (recommended)
- Fun sound-makers
- Pre-rendered Science Journal graphs

## Key STEM Skills:

- Data literacy and experimentation; changing actions to produce graphical representations defined by constraints and variables.
- Data literacy; connecting actions with their graphical representations.
- Defining and testing variables.

## Next Generation Science Standards:

- *2-PS1-2 Matter and Its Interactions:* Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
- *3-5-ETS1-2 Engineering Design:* Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

## Creating Graphs:

For this experiment, testers will explore the sounds different materials make with the sound sensor. The goal is to figure out which material made the sound represented on the printed graph. The simplest way to make the graphs is to take a screenshot with the phone while recording the materials with the Science Journal app and print it out. Methods for taking a screenshot vary depending the smartphone, so please refer to your phone manufacturer's instructions. Remember to note which graphs go with each sound-maker; it's a good idea to create a key for checking your results.

### Experiment:

- Open the sound sensor on the Science Journal app.
- Gather up the sound-makers used to create the printed graphs. Any sound-makers will work for this activity, but look for various items so a range of sound graphs will be present. The best materials are able to make a variety of sounds, depending on how they are manipulated, allowing for deeper exploration. Here are a few items that work well:
  - Squeaky toys
  - Metal tins filled with small bells or beads
  - Thunder sticks or other musical instruments
  - Kitchen items like pots or spatulas
  - Maracas
  - Whoopie cushions
- Invite the tester to explore the materials and see if they can match them to all the graphs.
- Encourage the testers to think creatively. For example, how else could a squeaky toy make noise?

### Further Investigations:

- Try including items that are not featured on any the printed graphs. Challenge testers to recreate printed graphs with a mismatched sound maker.
- This activity works great as a team project. Work with a partner or as a group to brainstorm different ways to manipulate the sound-makers.