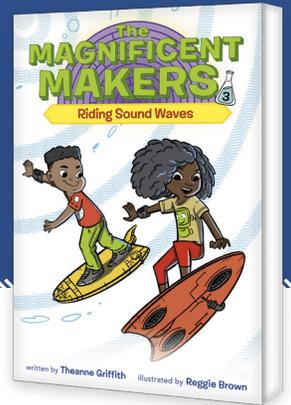


Discussion points, activities, and writing prompts for

The Magnificent Makers: Riding Sound Waves



1. Get to know the characters in *Magnificent Makers #3: Riding Sounds Waves*. If you're new to the series, follow the instructions in c for both Pablo and Violet.

- Grab the outline of Pablo that you have been working on. What new things have you learned from this book? Have any of your questions been answered? Update your outline!
- Grab the outline of Violet that you have been working on. What new things have you learned from this book? Have any of your questions been answered? Update your outline!
- Who is Henry? Draw an outline of a human figure, which will represent Henry, on a large piece of paper. Write any known details about Henry inside the outline. Outside of the outline, write any questions about Henry that you might have. Discuss them.

2. Mr. Eng's class is on a field trip to the City Science Museum. The students are directed to the Kids' Corner. Describe the senses exhibit in your own words, using specifics from the book.

- Many cities have science museums. Find the website for a science museum in your state. What exhibits are currently on display? Can you visit them, virtually or otherwise?
- Create a brochure for your own science museum, highlighting all the exhibits you would include. Be sure to incorporate descriptions of each exhibit and a museum map.

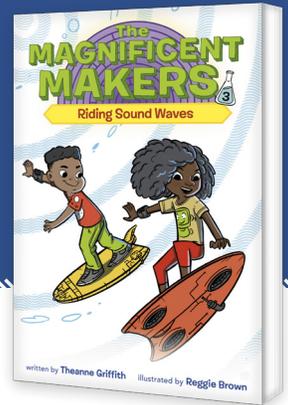
3. Cooking and baking use science and math and our sense of taste to create delicious things. Can you solve this tricky recipe riddle? You will need: ziplock bags, lemons, water, sugar, straws, a juicer (or way to squeeze the lemons), a measuring cup with multiple measurements on it, a knife, and a teaspoon. Ask students to predict which of the following numbers go in each blank: 1, $\frac{1}{4}$, and $\frac{1}{2}$.

- In the ziplock bag, place the juice of ___ lemon, ___ cup of water, and ___ teaspoon of sugar.
- Zip the bag securely and gently mix the contents for about thirty seconds.
- Open a small section of the top of the bag and insert the straw. Taste the lemonade.
- How does the lemonade taste? Need more lemon? More water? More sugar? Try the recipe again, this time switching the numbers until your desired taste is achieved.



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The Magnificent Makers: Riding Sound Waves



4. Just like Pablo, Violet, and Henry, you can experiment with your sense of smell. Plan a Nose Knows field trip. Write down all the smells you find.



- Collect items that have a fragrance (two of each) and place them in opaque containers. Poke holes into the top of the containers and mix them up. Try to match the containers that have the same item.
- Noses and brains are supposed to help you find foods that are good to eat. Collect at least ten different items that smell—some should be things that are edible, such as cheese, curry powder, spices, mushrooms, and fruits, and some items that are inedible. See if you can pick out things that can be eaten and those that can't. Suggested scents: lemon, orange peel, cedarwood, perfume-soaked cotton, banana, pine needles, chocolate, coffee, dirt, vanilla, garlic, onion, mint, vinegar, moth balls, rose flowers, sawdust, ginger, peppermint, pencil shavings, and potato chips.



5. Violet, Pablo, and Henry's first Maker Maze challenge is all about the sense of touch. Dr. Crisp explains that they must each reach into a box of goodies and grab an object. Then, using their sense of touch, they must guess what the object is. What objects do Violet, Pablo, and Henry take out of the box?



- Make your own sensory challenge by decorating an empty shoe box and cutting a hole in one of the ends. Attach a sock (with the sealed end cut off) to the hole so the rest of the sock serves as a tube into the box. Place various items, one at a time, into the box (for example, LEGO brick, pinecone, Play-Doh, feather, etc.). These should be very tactile items. Although you might be able to identify the object, try to describe it using adjectives (hard, soft, squishy, bumpy, etc.) so that others might be able to help you guess.
- Try the challenge again, this time wearing mittens. How does the experience change? Is it more difficult or easier? Why?



6. With a piece of paper and a pen, sit quietly for five minutes, writing down all the different sounds you hear. For example, a lawn mower outside, birds chirping, doors closing, voices in the hallway, coughing, etc.

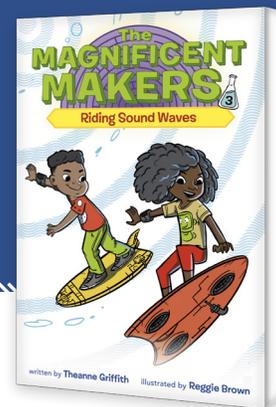


- Then listen for sounds for another five minutes, this time taking note of how loud or quiet the individual sounds are using a scale of one to five—one being the quietest and five being the loudest. How many different sounds did you hear? What rating did you give them on the volume scale?
- What factors play into how loudly we hear sounds? Does it matter if they are far away? What about if we hear lots of sounds at once? What else affects our hearing?
- Our sensitivities may make us experience noise and other stimuli differently from someone else. But our differences make us special. Who is more sensitive to noise, Violet, Pablo, or Henry? Explain your answer using evidence from the book.



Discussion points, activities, and writing prompts for

The Magnificent Makers: Riding Sound Waves



7. Experiment with sound waves by making an ear trumpet. Take a piece of paper and roll it into a cone. Place the small end of the cone up to your ear. Be careful not to poke your ear. Listen to a distant sound. Is the sound louder or quieter with the ear trumpet? Why? The ear trumpet gathers sound waves and funnels them into your ear, and because the funnel is bigger than your ear, it gathers more waves.

a. Now, thinking about this idea of sound waves, experiment with ways to make loud noises quieter.

8. How does turning on sensory mode make the Maker Maze more welcoming for Henry?

a. How can you be more welcoming to those who have sensory differences from you?

9. Our eyes benefit from working together. For this activity, you will need an eye patch (optional), a penny, and a cup.

a. Place the cup on the floor in front of you. Then, while wearing the eye patch or closing one eye, hold your arm out straight with the penny in your fingers. Slowly move your hand above the cup, and try to drop the penny in. It's harder than it looks!

b. Try dropping the penny in the cup without the eye patch. Is this easier or more difficult? Explain.

c. What do Violet, Pablo, and Henry learn about the sense of sight? How can you support this with your own findings?

10. Brainstorm together and create your own board game version of the Five Senses Maker Maze, in which players help Pablo, Violet, and Henry complete each challenge through board game elements (cards, pathways, challenges, dice, a timer, etc.).



Guide prepared by Marcie Colleen.



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