

DAY 3 EXPERIMENT

Toothpick Heartbeat

Materials

- ❑ Mini marshmallows, 1 per child
- ❑ Toothpicks, 1 per child
- ❑ Timer or stopwatch

No Pre-prep

Class Time Directions and Dialogue

Let's play a quick game of "Would You Rather?" Would you rather go skiing or go swimming? *Take quick responses.* Would you rather swing on a swing or kick a ball? *Take quick responses.* Would you rather run or rest? *Take quick responses.*

God designed your heart so it keeps working whether you're running or resting. From the time you are about 5 weeks old (*gestational age*) inside your mom, your heart keeps pumping, never once taking a rest. Sometimes it pumps faster and sometimes slower. The rate your heart pumps is called your *pulse*. Your pulse is the number of times your heart beats in one minute.

Do you think we all have the same pulse? *Take responses.* No, our heart rates can vary. In general, do you think men or women tend to have faster heart rates? *Take guesses: women.* How about kids or grown-ups? *Take guesses: kids.* We're going to do an experiment to measure our pulse and find out what our heart rate is. Here we go!

1. Place your marshmallow with the flat side down on the table in front of you. Gently push the toothpick into your marshmallow.
2. Place one of your arms flat on the table with your palm facing up. *Demonstrate.* Put your marshmallow toothpick on your wrist on the thumb side. *Demonstrate by showing where the pulse is found.* Be very, very still and see if your toothpick moves with each heartbeat. You might have to move your marshmallow around until you find just the right spot. The movement is going to be very small, so you need to be still to see it.
3. I will set a timer for 15 seconds and you can count how many times your heart beats. *Compare numbers among the mates.*
4. Set your marshmallow toothpick to the side and jog in place as fast as you can for one minute. Ready? Go! *Time one minute.* Now, put your marshmallow toothpick back on your pulse spot and count how many times your heart beats now in 15 seconds. *Do so.*
5. Did the numbers change after running in place? *Take responses.* Wow, think about how you were breathing. Was your breathing different the second time? *Take responses.* Your heart usually beats faster during exercise so more blood can get out to your body. God thought of everything when he made your heart to pump blood through your body.



Tip Corner

- Lick the bottom of the marshmallow if you can't get it to stay.
- If anyone is having trouble getting theirs to move, have them watch someone else's that is working. It's really cool!
- You may want to do the resting, then running in place concept with the stethoscope experiment rather than the toothpick heartbeat experiment.
- Use toothpicks that have one pointy end and one flat end.
- A science term introduced today is *pulse*.