

Scavenger Hunt



Explore the museum's exhibits and see if you can meet the challenges!

It is not always about being right or wrong, it is also important to have fun and learn about your friends, that is what the questions in **Bold** are for.

FLOOR 2

The Giant Heart

1. Red blood cells like ours contain iron; butterfly's "blood" can sometimes be what color, and why?
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2. **This might be one of the only times it is appropriate to ask this, but how much blood do you have inside you? Find out, it might be more than you expect.**
3. The Giant Heart allows you to follow the path of a blood cell traveling through a human heart. It can get a little claustrophobic but if you needed some fresh air, luckily at the top there is an open lookout point from what vessel?
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4. **Let us see how "balanced" your lifestyle is at the Heart Attack interactive, how does it compare to your friends?**
5. At our display of different animal hearts, which heart beats the fastest and which one beats the slowest?
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6. Only 45% of our blood is made up of red blood cells, what accounts for the largest percentage of our blood volume?
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7. **Looking for a place to really open up to someone? Might I recommend the little viewing area in the corner of the exhibit?**

Electricity

1. **Touch the key. Go Ahead. Don't think about it, just do it...you know you want to.**
2. Benjamin Franklin may not have invented the Leyden Jar, used to store electrical charges, but he did link a few together and called it this? And why that name?
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3. In 1884 to help consumers navigate the then new concept of electrical lighting for their homes, The Franklin Institute kept bulbs burning for how many consecutive days? Who came out on top of the tests?
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4. **Go to the tabletop circuit activity and hold a friend's hand, is there a spark? What if you touch their nose instead?**
5. Pennsylvania makes use of several different power sources. Which one accounts for nearly 36% of all PA power?
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Franklin Air Show

1. I hate it when the wind blows over my head and lifts my hat off, Bernoulli probably didn't like it either, but he realized it did that because slow-moving air applies what type of pressure?
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2. **It takes a lot of strength to pump up the balloons, who amongst your group can do it the fastest?**
3. Hanging around the exhibit we have one of the original Wright Flyers along with some displays that show us how they got to this monumental design. What two things made the 12th airfoil the most successful wing tested in the Wright's wind tunnel?
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4. **At some point when you were a kid you probably said you wanted to be a pilot, here is your chance to at least sit in the cockpit of a plane, have your friend take a photo of you in your best pilot pose.**

Your Brain

1. Your brain accounts for 20% of your body energy use, but only what percent of your total body weight?
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2. Neurons are not the only brain cells, but they do get the most attention. You also have blood vessels and these cells which act like a sort of squishy scaffolding for the neurons, what are they called?
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3. The Fusiform Face Area is the part of the brain responsible for identifying faces, including in everyday objects. It is also responsible for face blindness, which goes by what name?
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4. **Column A VS. Column B, challenge your friend to see who can read the list faster, then swap and try again at the 'Confuse your vision' interactive.**
5. **Take a nap at Sarah Bellum's Inn and have your friend who knows how to find the best angles, take your photo.**
6. Locate the circle of brain slices and find the one that most corresponds with your age. While our brain is always changing, it typically reaches its maximum size at what age?
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Amazing Machines

1. You might find a few kids around the museum, but in this exhibit, there is one that has been here since 1928. The Maillardet Automaton is programmed to produce 3 poems and 4 illustrations, what illustration does it look like it just finished?
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2. Do you have the patience or time to crush it at the can crusher, how many cranks does it typically take to crush it all the way?
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3. Take a look at the internal combustion engine cycle video; when the piston reaches the top, a spark sets fire to a mixture of what two ingredients?
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4. **Challenge a friend to see who can launch the highest rocket. What amount of water and pressure is the most ideal?**

Wondrous Space

1. Feel the vibrations of a medium energy wave like infrared; would feeling the vibration of an x-ray be higher or lower energy?
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2. **Gather planets, satellites, and other celestial bodies as your gravity pulls them toward you. Who in your group can create a black hole first by getting maybe too much into their orbit?**
3. Riddle me this: There are two giraffes, both have a mass of 2600 lbs., but one only weighs 984.09 lbs.? How is this possible?
.....
4. The Meteorite on display may be the oldest thing you will ever touch. The time it has been on Earth is only a small fraction of its long history, having hit Earth about how many years ago?
.....
5. Lay down and gaze into the cosmos, learn about our sun and all the beautiful nebulae. Our sun is a mass of ionized gases called plasma, while nebulae are giant clouds of and

FLOOR 3

Wondrous Space

1. The core stage of a Space Launch System (SLS) Rocket is composed of how many engines?
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2. It's important to always eat your vegetables, even in space. Of our garden options for you to plant, which one yields the lowest nutritional value and has the highest resource usage?
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3. So, you're a rocket scientist? That actually does impress me, what is also impressive is the amount of water that is estimated per person for a mission to mars. How many gallons would be needed for you and your three closest friends to complete this mission?
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4. Take a load off on the astronaut bunk, but don't get too comfortable or you might fall asleep for the number of hours an astronaut plans for on a typical night in space which is
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5. **Astronauts are given one small container, about the size of a shoebox in which to pack personal items to take to space. What would you bring, and do you share some comparable items with others in your group?**
6. When hunting the sky for new places we could call home, what are the four conditions scientists look at when determining if another world in space could be habitable?
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SportsZone

- 1. How fast are you? I can beat the Philly Phanatic, but not the speed skater, give it a GO and see where you line up with some of our racers.**
2. It is nice to go with the flow when swimming, but it can be hard when you are up against 2 opposing forces, what are these two forces?
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- 3. You might have been impressed with your racing skills, but what about your reaction time? What is your number and who amongst your group was the most successful?**
4. What has more calories, a banana, or an egg? And If I all I had for lunch was 2 bananas and 3 eggs, how many calories will I have consumed?
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5. You all deserve a firm pat on the back for all your hard work, which is how many G's of force? It is a lot less than the 150 G's your head might receive from an extreme hit, but luckily helmets can help protect you from those.
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Sir Isaac's Loft

- 1. Are you strong enough to pull yourself up to the top with the pulley? Who was the fastest in your group and did they have a *mechanical* advantage?**
2. Playing with the Lissajous patterns always makes me a little hungry, because there is one ratio of left-right frequency to front-back frequency that resembles a soft pretzel, which one is it?
.....
- 3. Let us see how the dominos fall. A straight line is great, can you make any other cool patterns with your setup?**
4. When a pattern occurs from 2 different patterns interacting with one another, that's a Moire...pattern. Can you find the 4 hidden words in the first of the 3 tabletop interactives that plays with this trippy phenomenon? What are they?
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ANSWERS: FLOOR 2 - **The Giant Heart** - (1.) Green due to Nickel, (3.) Pulmonary Artery, (5.) Fastest - Canary, Beaked Whale - Slowest, (6.) Plasma | **Electricity** - (2.) A Battery, it is a military term for a row of guns all firing at once, (3.) 44 days, The Edison Company, (5.) Nuclear Power | **Franklin Air Show** - (1.) Higher Pressure, (3.) Generated the most lift and least drag | **Your Brain** - (1.) 3%, (2.) Glial Cells, (3.) Prosopagnosia, (6.) 15 years old | **Amazing Machine** - (1.) A ship/boat, (2.) 1,200,000 cranks over 4 months, (3.) Air and gas | **Wondrous Space** - (1.) Higher, (3.) The Giraffe is on Mars, (4.) 50,000 Years Ago, (5.) Dust and Gas | FLOOR 3 - **Wondrous Space** - (1.) Four, (2.) Celery, (3.) 2,847 Gallons (4x711.75), (4.) 8.5 Hours, (6.) Star Temperature, Distance from the Star, Planet Size, Atmospheric Analysis | **SportsZone** - (2.) Thrust and Drag, (4.) A Banana has more 105 calories, while an egg has 74 calories, 2 bananas + 3 eggs = 432 calories, (5.) 4 g's | **Sir Isaac's Loft** - (2.) 3:4, (4.) Cyan, Magenta, Yellow, Black