

## *Be a Health Scientist!* MUSEUM VISIT GUIDE

We are so excited to have you visit The Franklin Institute with your learners!

**The following document is meant to help you guide learners in making connections between the GSK Science in the Summer™ *Be a Health Scientist!* activities and interactives at The Franklin Institute.**

The museum exhibits will give learners opportunities to engage further with some of the *Be a Health Scientist!* ideas and help them broaden their understanding of these science and engineering concepts. We hope the museum continues to inspire your young learners and foster their curiosity.

**While connections can be made all over the museum to science and engineering practices, the new *Body Odyssey* exhibit is directly aligned to the *Be a Health Scientist!* activities:**



### Body Odyssey

Curiosity meets discovery in a new exhibit surrounding the iconic Giant Heart. A journey through the human body in a quest to achieve balance in life and well-being.

# Be an Athletic Trainer

The Athletic Trainer activity focuses on athletes' knees and exercises that may help strengthen or stretch the muscles and tendons around the knee.

## Body Odyssey, 2<sup>nd</sup> floor

### Your Body Systems Working Together



In addition to working with athletes directly, athletic trainers need to know how the different systems of the body work together.

- Have learners observe the screen with skeletal and muscular system projections.
- **Ask:**
  - *How do muscles and bones move as you move your body?*
  - *Can you make them twist? Turn?*
  - *Which muscles are the biggest? The smallest?*
  - *What do you think might happen to your body movement if your muscles were weak or injured in a part of your body?*

### Running Girl



Athletic trainers work with all kinds of athletes to help them get in the best shape possible for their sport.

- Direct learners to follow the prompts on the screen to observe strength with different levels of exercise and rest/recovery.
- **Ask:**
  - *What happens to the runner when you hold the "exercise" screen for a long time? Why do you think that happens?*
  - *Try different lengths and combinations of exercise and recovery and observe how the runner responds.*
  - *Why do you think recovery is so important when exercising?*

### Design your best Kicks



Athletic trainers may also advise athletes on proper gear to wear while playing sports that will help protect their muscles and joints.

- Direct learners to follow the prompts on the screen design and test a sneaker.
- **Ask:**
  - *What parts of the sneaker can you change in this interactive?*
  - *What results did you get with your first design? How can you improve your design for better athletic performance?*
  - *Try different combinations and compare your athlete's results.*

## SportsZone, 3<sup>rd</sup> floor

### Parts of the Knee



- Direct learners to read about and view the parts of the knee.
- Pull the lever in the middle and observe the knee movement.
- **Ask:**
  - *How many different parts do you see in the knee models?*
  - *Why do you think the knee is so prone to injury?*
  - *Pull the lever in the middle. What parts of the knee move?*

### Sports activities all around SportsZone!

As learners explore the many active opportunities in SportsZone, ask them to think about:

- *What exercises might an athletic trainer have you do to improve at this sport?*
- *What injuries are likely to occur playing this sport? How could an athletic trainer help you prevent those injuries?*

# Be a Cardiologist

The Cardiologist activity has learners build a device to clear a clogged artery to restore better blood flow.

## Body Odyssey, 2<sup>nd</sup> Floor

### Get Your Blood Flowing



Cardiologists have to know everything about the blood flowing through their patients.

- Have learners follow prompts to see how much blood they have in their bodies.
- **Ask:**
  - *How much blood is in your body? Does this surprise you?*
  - *Compare your blood amount to someone taller than you. How do the amounts compare? Someone shorter?*

### Your Body Systems Working Together



In addition to studying the heart and blood flow, cardiologists need to know how the circulatory system works together with other body systems.

- Have learners observe the screen with circulatory and muscular system projections.
- **Ask:**
  - *How do veins and arteries move as you move your body?*
  - *Read the text at the top of the screen. How do blood and muscles work together?*
  - *What do you think might happen to muscles if blood flow is reduced due to a clogged artery?*

### See Your Veins



Cardiologists must be able to tell a healthy circulatory system from one that needs intervention.

- Encourage learners to hold out their hand, wrist, or arm under the scanner and observe.
- **Ask:**
  - *How do veins in your hand and arm compare? Are some larger or smaller?*
  - *Are there more or fewer veins in your hand than in your arm?*
  - *Observe a friend place their hand/arm under the viewer. Do their veins look different than yours?*
  - *Do you think the veins in a small child or adult would look different or the same as yours? Why?*

### Giant Heart



The heart is the most important part of the circulatory system and cardiologists study it to make sure blood is flowing properly throughout your body.

- Invite learners to walk through the giant heart (or observe it virtually on the wall screen) and make observations about the chambers and how blood flows.
- Encourage learners to “sync” their heartbeat with the giant heart and read the panels on the walls.
- **Ask:**
  - *What did you observe inside the heart? What did you see, read, and hear?*
  - *What do you think may happen to blood flow and/or your heartbeat if you have a clogged artery leading to the heart?*

# Be a Dietitian

The Dietitian activity measures the Vitamin C in different drinks in to help a patient get more into their diet.

## Body Odyssey, 2<sup>nd</sup> Floor

### Go with Your Gut



In addition to helping you get the right nutrients in your diet, dietitians also study your digestive system, gut, and microbiome.

- Invite learners use the dial to zoom in and out and read the prompts on the screen to learn about gut microbes.
- **Ask:**
  - *How many different microbes do you see based on shape and color?*
  - *What did you find out about bacteria in your gut? Did anything surprise you?*
  - *How do you think changes in your microbiome might affect your health?*

### Test Your Food Smarts

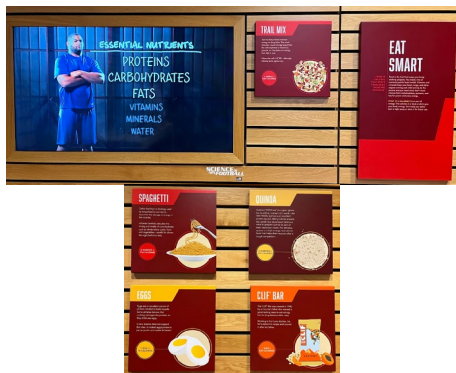


Dieticians can help people learn about which foods will keep them healthy.

- Have learners answer the quiz questions on the screen to learn about a balanced diet.
- **Ask:**
  - *What questions did you get correct? Incorrect?*
  - *Were you surprised by anything you learned?*
  - *How does this activity make you think about the foods you like to eat? What might you eat more or less of?*

## SportsZone, 3<sup>rd</sup> floor

### Eat Smart Videos and Panels



Eating the right nutrients can help athletes train and play their best

- Encourage learners to watch the video and read the panels on the walls to learn about different nutrients and where to get them from.
- **Ask:**
  - *What are some of the "essential nutrients" discussed in the video/panels? What are some examples of each?*
  - *Why do you think it is important to get a balance of different kinds of nutrients?*
  - *What kinds of things do you think athletes need to consider when choosing their diet?*

### Energy Goal



Athletes often work closely with dietitians to help them excel in their sport.

- Direct learners to follow the directions to determine how many calories they need every day to keep up their energy.
- **Ask:**
  - *How many calories helped you get to the balanced zone?*
  - *Why do you think different sized bodies need different calories?*
  - *How does increasing the exercise level change the amount of calories you need? Why do you think that is?*



# Be an Orthopedic Doctor

The Orthopedic Doctor activity challenges learners to mend a broken bone in a patient's leg.

## Body Odyssey, 2<sup>nd</sup> Floor

### Build a Bone



Orthopedic doctors must understand the structures of bones to be able to help them heal and function properly.

- Have learners follow the prompts to build a bone with the materials provided.
- Encourage learners to read about the parts of the bone.
- **Ask:**
  - *What do the hard white pieces represent in the bone?*
  - *What do the flexible red pieces represent in the bone?*
  - *Can you build a bone with a different number of pieces?*
  - *Compare your build to a peer's. What is similar or different?*

### Building Your Bones Panel



Orthopedic doctors need to know all about bones: how they grow, break, and change over your lifetime.

- Invite learners to read the panel about bone growth.
- **Ask:**
  - *According to the panel, what can help your bones grow strong?*
  - *Look at the images of the healthy bone and the bone with osteoporosis. How are they similar and different? What do you think the light and dark colors represent?*
  - *Why do you think it is easier to break a bone when you are older?*

### How can AI Help Doctors?



New technologies are helping orthopedic doctors identify and mend broken bones.

- Invite learners to engage with the prompts on the screen to learn about the benefits.
- **Ask:**
  - *What kind of questions are you better at than the AI? Why?*
  - *What kinds of questions allowed AI to beat you? Why?*
  - *How could an orthopedic doctor use AI to help with their practice?*
  - *Can you think of any other ways doctors could use AI?*

# Be an Epidemiologist

The Epidemiologist activity studies virus spread in a school to determine how it spreads and where it originated.

## Body Odyssey, 2<sup>nd</sup> Floor

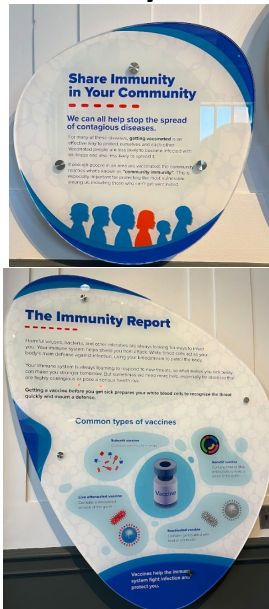
### Find and Infect the Body's Cells



Epidemiology is all about viruses, infections, how prevent the spread of viruses, and how to help the body fight them off.

- Have learners follow the prompts on the screen to infect cells while another learner fights the virus off with white blood cells.
- **Ask:**
  - *What happens when a white blood cell interacts with a virus?*
  - *Can you get the virus to win?*
  - *Can you get the white blood cells to win?*
  - *What do you think happens when your body has less white blood cells?*

### Immunity Panels



Epidemiologists can help us figure out to use vaccines to prevent the spread of viruses

- Encourage learners to read the wall panels behind the virus game to learn about immunity and vaccines.
- **Ask:**
  - *If our body's white blood cells fight off infection, why do you think vaccines are necessary? Read the panels to learn more.*
  - *Why is "community immunity" important?*
  - *What vaccines do you know about? What have heard about vaccines?*
  - *Do you have any questions about vaccines?*

## Other Places to Make Connections:



### Hamilton Collections Gallery

Surrounding the Baldwin 60000, guests will discover a treasure trove of rare artifacts meticulously curated from The Franklin Institute's collections.

### Hamilton Collections Gallery

*This is a new permanent exhibit highlighting artifacts from The Franklin Institute's vast collection.*

If you visit this exhibit, encourage learners to look for **objects that can help keep people healthy or help them get better when they are sick.**

#### Ask:

- What objects can you find in the gallery that relate to people's health? What parts of the body do they relate to?
- Can you make any connections between the health science careers in the SIS activities and the objects found?
- What equipment do you think an Athletic Trainer may be interested in within this gallery? Why?



### BODY WORLDS: Vital

Experience the groundbreaking global phenomenon BODY WORLDS! Marvel at awe-inspiring full-body plastinates and explore fascinating specimens alongside engaging multimedia displays—for an unforgettable and enlightening look inside the human body.

### BODY WORLDS: Vital

*Tickets for this special exhibit are available for an additional cost.*

*Visit the ticketing desk or our website for more information.*

If you visit this exhibit, encourage learners to make connections between the **PARTS OF THE BODY** and the **CARDIOLOGIST, ORTHOPEDIC DOCTOR,** and **ATHLETIC TRAINER** activities:

#### Ask:

- What parts of the human body system are highlighted in this exhibit?
- How do muscles, tendons, and bones connect?
- Can you find discussion of the circulatory system (heart, arteries, veins) in this exhibit? Which activity do you think relates to this system?
- What interests you most in the exhibit?
- What further questions do you have after visiting the exhibit?