

Body Works

STUDENT ACTIVITY SHEET



EXHIBIT HIGHLIGHTS

Body Works is all about human physiology. Students can explore the similarities that make us human and the differences that make us individuals. Students can investigate the systems that make us work: the bones and muscles that give us structure and strength, the heart that keeps us going and the sensory equipment that make us notice, react and enjoy. While they are exploring, students can learn more about how to keep those systems in good working order with nutrition and exercise.

Backbones	Flexible, supportive, protective ... our vertebral column and other animals.
Balance Test	We are not always conscious of it, but our muscles and bones are constantly working together to keep us upright.
Bone Stress	Thankfully our bones are not as hard as we might imagine them to be. At this exhibit students can use a bone model to learn to learn just how resilient the members of our skeletal system are.
Calorie Bicycle	Go for a ride, generate some electricity and learn about what the word calorie really means.
Center of Mass	Students can discover where their body strength or mass is located by trying to touch their noses to a button at this amusing exhibit.
Color Blindness Test	Using the standard Ishihara test, students can test their own color vision and see what others see who have color vision deficiency.
Fingerprints	We see the form, but what is the function? Our fingerprints, in addition to being unique, help us grip.
Flexibility	Along with strength and endurance, flexibility is the third part of the triad of fitness. Students can test their flexibility and learn about its role in maintaining good health.
Grip Strength	Students can find out how many lights they can turn on by a simple grasp of the handle.
Keep it Covered, Liver and Lungs & Amazing Body Facts	How we live affects our bodies. These exhibits explore how healthful choices can help us lead healthy lives.
Maze in the Mirror	At this exhibit students can give their eyes, hands and brain a work-out as they attempt to trace a shape in a mirror or pass a metal loop over a wire.
Muscle Endurance	Students can test and time their muscular strength by hanging around a while on the chin-up bar.
Nutrition	Students can quiz themselves about their own nutrition knowledge.
Piece of Mind & Use Your Brain	At first glance, the brain might look like a uniform structure, but it is a complex collection of parts devoted to certain tasks.
Pitch Match	Students may listen to several sound frequencies, try to match them and check the results.
Reaction Time	Finger poised above a button, students can have fun testing (and retesting) their reaction times.
Skeleton Match	Our skeletons give us shape. We are the shape of our skeletons! Play a fun matching game comparing animal skeletons.
Skull Comparison	Form and function: see how other animals' skulls compare with our own.
Smell-o-Rama	Students can sniff a variety of common odors and learn about olfactory sensitivity.
Visual Acuity	Students can test their vision and learn what 20/20 vision really means.



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PRE-VISIT DISCUSSION

- As a class make a list of human body systems, their parts and their functions.
- Allow students to draw a picture of someone catching a ball (or some other activity). Highlight and label the parts of the body they think are involved in successfully catching a ball. As appropriate, let students write descriptions of the contribution at least three of the parts make to ball catching.
- Catching a ball, like all human movement, is complicated business. What if a member of the system cannot contribute to the task? Imagine that human fingers don't have moveable joints. How would that affect the activity of catching a ball?

WHILE AT BODY WORKS

As appropriate, encourage chaperones to lead discussions within their field trip groups about the following:

The human body is a complex collection of systems. The nervous system (brain, spinal chord, nerves) handles the millions of inputs we receive daily and, working with other systems in our bodies, translates these inputs into useful outputs. The olfactory system translates smells (inputs) into messages (outputs) that tells us whether something smells good, bad, etc. Spend some time at Smell-o-Rama. Can you identify the odors? What smells good? What smells bad? Does most of your group agree that certain odors smell good or bad? Have a brief discussion about things that each person in your group thinks smells good or bad. Our reactions to various inputs is a survival adaptation. How do our reactions to smells ("That smells good!" or "Oooh, that stinks!") help us to survive?

POST-VISIT DISCUSSION

- Review and amend any list you may have made of students' prior knowledge of body systems. Ask students to name their favorite exhibit, what body system it addressed and what they learned from it.
- Ask students to imagine themselves as human physiologists. What questions do they have about the human body and its functions and how might they answer those questions?
- Compile an anonymous list of the data from the Body Games section of the Student Activity Sheet. Choose data to compare, such as Flexibility and Muscle Endurance. Graph them to see if there is any correlation. Discuss.

Essential Academic Learning Requirements (EALRs) for Washington state addressed in this flyer*:

EALR 4: Domains of Science: Life Science

Big Ideas:

- The human body is made up of various parts.
- Humans have different structures and behaviors that serve different functions.
- Both plants and animals have different characteristics that can be used to classify them.

EALRs 1 & 2: Crosscutting concepts and abilities

Systems: Recognize that humans are made of parts and naming at least 5 of those parts.

Explain how different parts contribute to the whole.

Describe how a system can do things that none of its subsystems can do alone.

Inquiry: Ask and answer questions by making observations or trying things out.

**To find out about EALRs addressed in the exhibit, please refer to the Body Works EALR chart in your package.*

Please feel free to use the Student Activity Sheet, in part or whole, as an on-site activity for your class.

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BODY BRIEFING

HUMAN BIOLOGY INFORMATION

The body is made up of systems. These systems work together to help the body survive. When demands are made on one part of the system, other parts of the system must join in to meet those demands. Think about being on a team playing a game. When one member of your team (or system) is trying to score points, the other members of the team (system) do certain things to help ensure the points are scored. We talk about a team as though it were a single thing, but it is made up of parts (the players) who work together to have a successful game. The same goes for the body. We often talk about it as though it is a single thing, but it is made up of many parts that work together as a system to live successfully. Keep that in mind as you explore the Body Works exhibit.

When you took the Reaction Time challenge you probably used your finger to press the button, but many more parts of your body were used.

BODY GAMES

Visit each of these "challenge stations" with another student and record the results of your challenges.

Flexibility: _____ inches

Grip Strength – estimate the amount of light bulbs you lit up and circle the estimate:

25% (few) 50% (half) 75% (most) 100% (all)

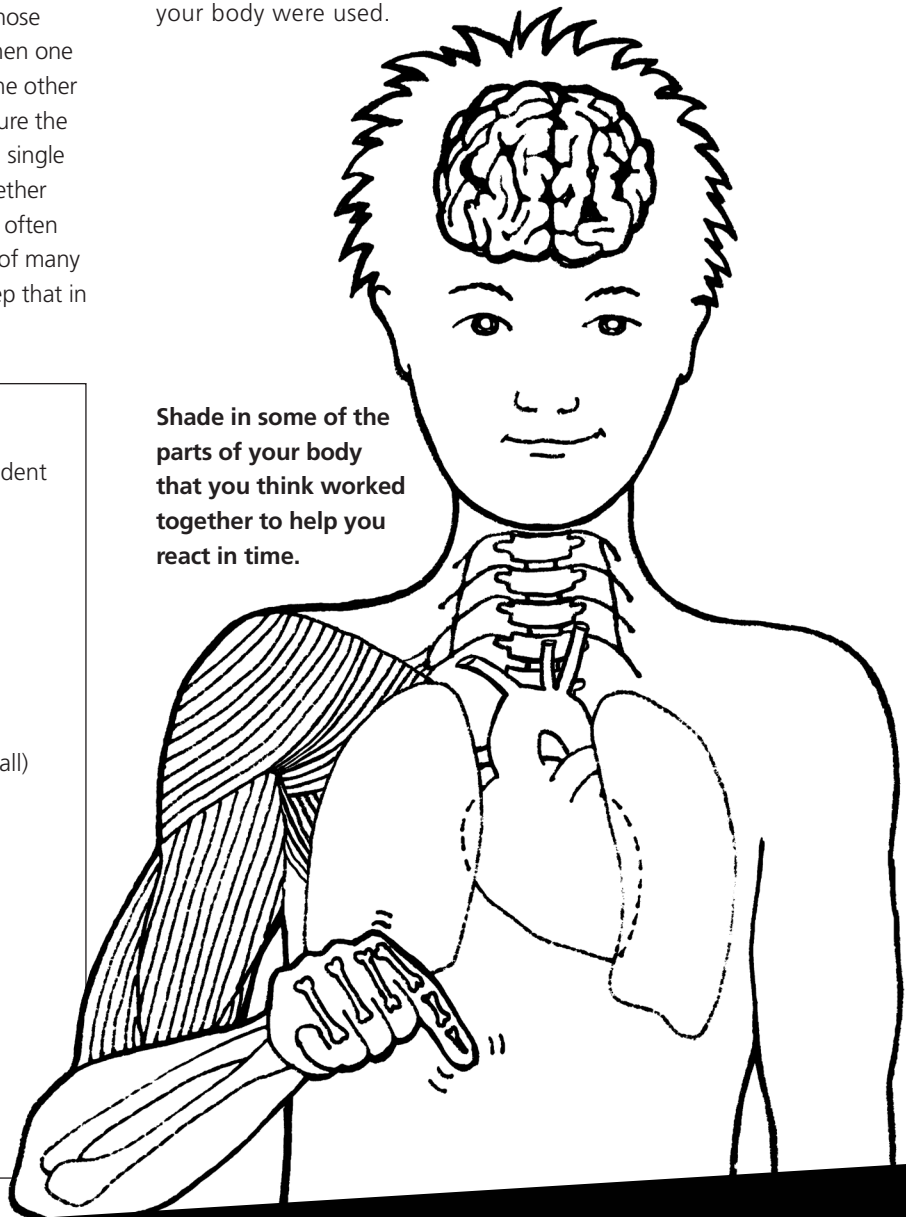
Reaction Time: _____seconds

Muscle Endurance: _____minutes_____seconds

Balance Test: _____seconds

Visual Acuity: 20/_____

Shade in some of the parts of your body that you think worked together to help you react in time.



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THINGS TO THINK ABOUT AND DO

- Ask three students to name which of the exhibits they liked best and something they would tell someone else about it. Record their names and answers here.

1. _____

2. _____

3. _____

- Go to the Center of Mass exhibit. Do you think your center of mass is above your waist or below your waist?

How can you tell?

- Human physiologists (fizz-ee-all-oh-jists) are just one type of scientist working to understand more about the human body. Scientists often learn things by designing experiments. Imagine that you are a physiologist who wants to find out if people who have a strong grip also have a fast reaction time.

Write a brief description of your experiment to find out if grip strength is related to reaction speed.

TAKE IT AWAY:

Write one new fact you learned, or something that surprised you today about the human body. Share this with someone you live with.
