

HUMAN LOCOMOTOR SYSTEM

CHALLENGE KIT



This kit was created to assist you in completing the *The Human Locomotor System Challenge Kit*. Included are facts, crafts, games, puzzles, recipes and information.



E-Patches & Crests
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This kit was created to assist you in completing the *The Human Locomotor System Challenge Kit*. Included are facts, stories, crafts, games, recipes and information that can be copied and distributed to the participants working on this kit.

After completing the kit, you can order the 3" crest/patch through e-patchesandcrests.com. You may place your order in one of the following ways:

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Detailed Outline

Page 5: PATCH REQUIREMENTS is the section of the booklet that details what needs to be accomplished in order to earn each patch.

Page 6-14: TEACHING PAGES contain information that can be used to teach the subject of the Challenge Kit. Subtopics include:

- *Locomotor/ musculoskeletal system overview*
- *Bones*
- *Muscles*
- *Joints*
- *Connective Tissue*

Page 15-18: CRAFT PAGES detail ideas for crafts that pertain to the subject matter. Includes:

- *Pasta Skeletons*
- *X-Ray Art*
- *Sidewalk Chalk*
- *Stress Ball*
- *Flexible Figures*

Page 19-25: RECIPE IDEAS give suggestions about what kind of food would go well with the theme. Some recipes included are:

- *Kale Chips*
- *Calcium Rich Cottage Cheese*
- *Yogurt Pops*
- *Orange Sunshine Soup*
- *Hummus*
- *Egg Salad Sliders*
- *Energy Balls*
- *Quinoa Salad*
- *Oatmeal Apple Muffins*

Page 26-39: GAMES AND ACTIVITIES provide entertainment and recreational ideas for both individuals and groups. Includes:

- *Elbow Tag*
- *Traditional Hopscotch*
- *Snail Hopscotch*
- *Snake Hopscotch*
- *Teddy Bear Jump Rope*
- *Double Dutch*
- *Leapfrog Relay Race*
- *Who's the Brain?*
- *Limber Limbo*
- *Mad Libs*
- *Quiz: What's Your Go-To Healthy Snack?*
- *Colouring pages*

Page 40-51: PUZZLE PAGES contain cerebral challenges to reinforce the learning objectives of the Challenge Kit. Includes:

- *Definition Match Up*
- *Little Words Out of Big Words*
- *Crossword Puzzle*
- *Movement Word Search*
- *Skeletal Scramble*
- *Cheese-y Jokes*
- *Answer Keys*

Page 52: CREDITS

Page 53-55: BIBLIOGRAPHY

Page 56: FEEDBACK FORM

Patch Requirements

TO EARN THE PATCH:

- Sparks (5-6 yrs) need to complete 2 requirements from the list.
- Brownies (7-8 yrs) need to complete 3 requirements from the list.
- Guides (9-11 yrs) need to complete 4 requirements from the list.
- Pathfinders (12-14 yrs) and Rangers (15-17 yrs) need to complete 6 requirements from the list.

THE HUMAN LOCOMOTOR SYSTEM PATCH:

1. Discover how bones, muscles, joints and connective tissue work together to allow the body to move.
2. Test your knowledge by completing the Definition Match Up (page 41).
3. Research the locomotor system of an animal, such as an animal that swims or flies, to see how it compares to the human body.
4. Complete the Mad Libs activity (page 33) and then write your own short story, poem, song or skit to do with the locomotor system.
5. Investigate what kind of classes your local recreation/ community centre has to offer in the way of yoga, tai chi, contemporary dance or weight training classes for youth. See if you can drop-in on a class.
6. Complete the Quiz (page 34) and then head to the kitchen to make the suggested recipes.
7. Get together with your Scouting or Guiding unit or a group of friends and play at least three of the group/ team games.
8. Get creative and set up an obstacle course of physical challenges in your backyard or a local park and invite your friends over to try it out.
9. Solve two puzzles from the puzzle section.
10. Make one bone themed craft as well as either one muscle or one joint themed craft.
11. Tickle your funny bone by reading the Cheese-y Jokes.
12. Make the Sidewalk Chalk craft (page 17) and then use it to play all three versions of hopscotch (pages 28-29).
13. Colour two colouring pages.

Teaching Overview

THE SYSTEM

- Learn what the locomotor system does
- Learn how bones, muscles, joints and connective tissues are interrelated

BONES

- Learn about the function of the human skeleton
- Learn about the main types of bones
- Learn what bones are made of
- Learn how bones can be injured and how they heal
- Learn what you can do to help healthy bone development

MUSCLES

- Learn what muscles are made of
- Learn about how muscles grow and shrink
- Learn about how they work to move bones
- Learn how muscles can be injured and how they heal

JOINTS

- Learn about what joints do and where they are located
- Learn about joint illness
- Learn about the main types of joints
- Learn about the different types of mobile joints

CONNECTIVE TISSUE

- Learn about what connective tissue is and what it is made of
- Learn about the types of connective tissue in the locomotor system and what their jobs are
- Learn how damage can occur to connective tissue

QUICK FACT

BONE FACTS

No two bones are exactly alike. Many have a matching mirror image, but none are identical. A bone is stronger than a steel bar if the same weight. The smallest bone is the stapes bone in the middle ear. The longest bone is the femur, which is the thigh bone.

Teachings: The System

The locomotor system, also known as the musculoskeletal system, consists of the bones that form the skeleton, the skeletal muscles, the joints and the connective tissues. It is a very intricate system that coordinates to facilitate body motion. (Locomotion means movement).

Hundreds of muscles have to pull on bones and flex or stabilise joints to perform even the simplest of movements. Along with enabling it to move, the locomotor system also gives the human body its basic shape.

Teachings

BONES

Together, the bones of the human body form the skeleton. The skeleton supports the body, providing its framework. Its most important job is to protect the internal organs. The skull protects the brain, ribs guard the heart, lungs, liver and stomach and the pelvis shields the bladder and reproductive organs. Bones grow in many different shapes of which there are three characteristic types:

LONG BONES

Long bones are long and slim with wider, knobby ends. These bones are located in the limbs, fingers and toes allowing the legs to walk, the arms to reach and the fingers to point.



FLAT BONES

Flat bones come in various shapes and dimensions and are thin, broad and generally curved, like plates. Examples of flat bones are the sternum (breastbone), the ilium (pelvis) and most of the bones of the cranium (skull).



Teachings

BONES

SHORT BONES

Short bones are small in size and either tubular or cubic in shape. The easiest way to identify them is that they are as wide as they are long.

Their primary function is to provide support and stability to the body without moving very much. Examples of these bones can be found in the feet (tarsal bones), the hands (carpal bones), the wrists and the ankles.

Bones are made up of three layers. **Compact bone** is the strong, hard outside layer that acts as a protective “shell.” Beneath the compact bone is the layer of **cancellous bone**, which is a lightweight spongy material resembling a honeycomb structure. **Bone marrow** fills the centre of the bone and looks like red or yellow jelly. Bone marrow produces red blood cells.

A broken bone is called a **fracture**. Bone fractures can occur as a result of a fall or a trauma that causes a violent impact, such as a car accident. The good news is a broken bone can heal if the two (or more) broken ends are brought back together and kept in place.

A cast will hold the broken bones in position while the two ends of the broken bone build layers of new bone to reconnect the broken pieces. If the bone is shattered (broken in many places) metal pins and screws might be needed as well to better stabilize the bone it heals. It can take up to 12 weeks for bones to repair themselves and several more months after that for the bone to be as strong as it was before the fracture.

