WEEKDAY WONDERS

Content developed by the Tennessee Aquarium Education Department

TENNESSEE AQUARIUM

Animal Olympics: Day 4

The Olympics in Tokyo may have been canceled, but this week we are hosting our own games. Just as humans' abilities are highlighted in the Olympics, animals have special skills as well. They use speed, balance, aim, endurance, flexibility, and many others to accomplish their daily activity—and some of their skills are pretty amazing. This week we will explore these similar abilities that help animals in day to day survival.

These curated activities are listed in a suggested sequence but may be done in the order that works best for you and your young scientists. Learn more about this series in the Introduction to Weekday Wonders.

Question of the Day

Do animals work out or exercise?

Daily Nature Journal

Ask your young scientist to go outside and complete a daily nature journal entry. Need help to assist them? Use the Guide to Nature Journaling to support them in nature journaling each day.

Muscle Movement

Share the following information with your young scientist. Our muscles make us strong and help us move as we play, draw, color or write, and go on adventures. We take care of our muscles by eating good food, getting good rest, and exercise. All our animal friends also use muscles to help them move from place to place, catch food, and create shelters.

Print the movement descriptions on page 5 and have your young scientist cut them apart. If you do not have access to a printer, write the names on a slip of paper and make sure your scientist has access to a screen where s/he can see the descriptions.

Place the slips of paper into a container. Set a timer for an appropriate time for your scientist to act like the animal; for younger scientists it may be 30 seconds while for older scientists, it may be 2-5 minutes. For the youngest scientists, you may wish to have them complete the variation below.

Ask your scientist to draw the name or description of one animal. After reading the type of animal and the description of the movement, ask your scientist to move like that animal until the timer sounds.

Variation:

Rather than set a timer, designate a starting and finish line or point. Have your scientist stand at the starting point, draw out an animal from the bucket, and move like that animal until s/he crosses the finish line.

Moving Different Muscles

Have your scientist first reflect on the question, "Why do you think it is important for humans to move many different muscles the way you did in the previous activity?" Ask him or her to make a list of ideas.

Then, have your scientist observe an animal for 5-10 minutes. It might be an active family pet, an animal outside such as an insect or bird, or a video of an animal. Ask him or her to list the different muscles the animal uses in that time. It is not important that they know the names of the muscles, but rather consider the "muscles in the top half of the leg" or the "muscles in the neck."

Ask your scientist to go back to the question about why it is important for us to move many different muscles and see if s/he can add to or revise the list s/he made.

Testing Your Strength

Remind your young scientist that this week's theme is Animal Olympics. S/he has been moving muscles and thinking about why that is important for health and flexibility. Now, s/he is going to have a chance to think about the strength those muscles give animals.

Have your young scientist collect at least five items that all weigh different amounts. They might consider stuffed animals, a toothbrush, cans of food, and other items.

Then, have your scientist consider how to make a platform to hold items. It will only need to hold one item at a time, but it should be designed so that the item can be lifted on the platform and not fall off. We suggest a square piece of cardboard with yarn attached through a hole in each corner and tied together at the other end; however, you can encourage your scientist to be creative if you think they are ready for this challenge.

Have your young scientist put the item that s/he thinks is lightest on the platform. Tell your scientist that he or she should make a prediction about how many fingers s/he will need to lift the item on the platform, but that the lifting will need to be done in the order shown in the table on the right.

Number of Fingers	Fingers Used
1	Pinky only
2	Pinky and ring
3	Pinky, ring, and middle
4	Pinky, ring, middle, and index
5	Pinky, ring, middle, index, and thumb

Have your scientist make a three-column chart. The first column should be labeled "Items" and should list each of the items s/he collected. The second column should be labeled "Prediction" and your scientist should list the number of fingers s/he thinks that it will take to lift the item. The third column should be labeled "Actual." Tell your scientist that s/he will fill out this column as s/he does the lifting.

Ask your scientist to start with the lightest item and try to lift it using only the pinky finger. If s/he is able to lift the item with just the pinky finger, list "1" in the "actual" column for the item. If not, your scientist should try using the pinky and ring fingers. Continue adding a finger until your young scientist is able to lift the item. If your scientist needs to use both hands, have him or her add fingers in the same order on the second hand. Remind your scientist to note how many fingers each item required to lift it.

Discuss the results with your young scientist. How accurate were his or her predictions? Did any results surprise your scientist as far as how many fingers were required to lift an item? How might your scientist strengthen his or her fingers if s/he wanted to lift heavier items?

Dung Beetle Pull

Gather a sled, blanket, or large piece of cardboard to act as a transporter and a number of somewhat heavy objects, such as a bag of sugar, a bag of pet food, a ream of paper, or a gallon of liquid. Help your scientist choose a starting line and an ending line to pull items across a playing area.

Place one object on the transporter to see if your scientist can pull it from the starting line to the ending line. Ask how easy or hard it was to pull the object. Add another object and have your scientist try pulling the transporter across the playing area. Continue to add objects until the pull is very difficult for your scientist. Each time, talk about how easy or difficult the pull was.

Weigh each item and add up total weight your scientist can pull. If your scientist wants to determine a specific number, experiment by adding and taking off different objects from the transporter. If the total weight that is too heavy for your scientist to pull is 40 pounds, try removing a 5 pound object and add a 3 pound object. Can s/he pull it now?

Once your scientist is satisfied with the amount of weight s/he can pull, ask him or her to divide that number by your scientist's weight. This will give your scientist an estimate of how many times his or her body weight that she can pull.

Then, share that Animals often depend on strength to accomplish their day to day activities and have some truly amazing abilities. Tigers can carry something that weighs twice as much as they do as they climb a tree which is pretty impressive. However, some of the animal world's most surprising weight lifters include very small insects. The pictures and information on pages 6-8 will help your scientist learn more. How does your scientist's strength compare to the dung beetle and other insects? Is your scientist ready for the Olympic lifting competitions?

Moving Different Muscles Descriptions

Crab: Sit with hands and feet on the floor. Push your bottom up off the ground. Move your hands and feet to walk like a crab.

Rabbit: Stand on two feet and make small hops to do the bunny hop.

Snake: Lie on your stomach with your hands at your sides. Wiggle across the floor while keeping your hands at your sides to slither like a snake.

Penguin: Stand with your feet together, arms at your side, and hands parallel to the floor. Keep your heels together and waddle like a penguin.

Flamingo: Stand on one foot to balance like a flamingo. For fun, start with one foot and then try standing on the other. Is it easier to stand on one foot than the other?

Bear: Place your hands and feet on the ground and raise your bottom in the air. Walk on your hands and feet to lumber like a bear.

Frog: Squat with your hands and feet on the floor, push off with your legs, and land with your hands and feet on the floor to jump like a frog.

Inchworm: Stand with your feet together. Bend at the waist, keeping your legs straight and put your hands on the ground. Slowly walk your hands forward until your body is stretched out straight (or as close as you can). Move your feet forward, keeping your hands still, until you are back to your starting position. You are doing the inchworm crawl.

Mustang: Gallop across the floor like a wild horse.

Tiger: Crawl on the floor and then periodically crouch in your crawling position and pounce. Repeat these motions to prowl like a tiger.

Dung Beetle Pull Pictures

Dung Beetles may pull dung balls that weigh 1,141 times their own body weight. If they were the size of an average human, they could pull six double decker buses full of people.

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The Rhinoceros Beetle lifts items that are 50 times its body weight. If it were the size of an average human, it could lift 65 tons or 130,000 pounds.

Photo credit: https://commons.wikimedia.org/wiki/File:Xylotrupes_socrates_(Siamese_rhinoceros_beetle).jpg, Basile Morin / CC BY-SA (https://creativecommons.org/licenses/by-sa/4.0)

The Leaf Cutter Ant uses its jaws to carry items 50 times its body weight. If it were the size of an average human, it would be able to lift a truck with just its teeth.

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