Listen to Your Heart

Learning Objectives
By the end of the lesson, students should be able to:
- Identify why smaller animals have faster heart rates
- Measure their own heart beat
- Identify the difference between resting heart beat and active heart rate

Educational Standards Supported (Nebraska Early Learning Guidelines and/or NGSS)
- SC.K.7; SC.1.6; SC.1.6.2.A; SC.2.3.1.C

Materials List
- Exercise Wheel
- Heart Worksheet
- Stethoscopes
- Coffee Filters
- Construction Paper
- Markers
- Sharpies
- Scissors
- Heart Patterns
- Squirt Bottle
- Laminator/Laminating Sheets (Optional)

Preparation Tasks and Time Needed
- Obtain stethoscopes
- Print worksheets
- Make patterns for craft
Lesson

Introduction
Clover Crew sessions always start with a healthy living activity. Spend about 5-10 minutes stretching or doing various exercises such as running in place, squats, lunges, toe touches, sit-ups, etc.

Opening Questions:
- *Did your heart beat change after our exercise time?* Explain that a heartbeat is each time their heart beats, and heart rate is how many times their heart beats in one minute.
- *Do you think your heart rate is faster than a mouse’s?!* (NO)
- *Do you think your heart rate is faster than a whale’s?!* (YES) Let’s find out!!

Activity #1: Handout #1
- Listen to your Heart Worksheet

Activity #2: Handout #2
- Have youth listen to their heartbeat while sitting/resting. Have them count the number of times their heart beats in 15 seconds. Then have them multiply this number by 4 to get their heart rate (number of heart beats per minute). Educator helps youth do their math
- Repeat the same process after having the youth run in place, do jumping jacks, or some other physical activity for one to two minutes (depending on fitness of youth).

Activity #3: Craft Heart
- Make ‘stained’ glass hearts.
- Have youth cut a heart outline from construction paper (make sure the outline is not larger than the coffee filter)
- Color the coffee filter with sharpies and markers (put something underneath so markers do not bleed through). Sharpie color will not blend with rest of markers and will create dividing lines).
- Lightly squirt coffee filter with water bottle. Allow to dry.
- Attach coffee filter to paper heart. Laminate once dry.

Glossary words:
- HEART BEAT
- HEART RATE
- PULSE
- RESTING HEART RATE

Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln cooperating with the Counties and the United States Department of Agriculture. The 4-H Youth Development program abides with the nondiscrimination policies of the University of Nebraska-Lincoln and the United States Department of Agriculture.
Explain:

1. What is different about your heart rate/beat after playing or exercising?
2. How is your heart rate/beat different from a mouse’s or a whale’s? Why is it different?

Related Citizen Science Activity
See https://www.zooniverse.org/projects for project ideas that children can participate.

Enrichment/Additional Projects

- You could have the youth make two heart crafts, one to keep and one to give. Can be given to a nursing home or hospital.

We want to hear from you!

Let us know what you thought of the lesson or send us a picture of youth participating in the lesson.

#NE4HSTEM

County Fair Project Ideas:

- Enter heart craft in Clover Kid Project Area at County Fair

References/Resources: (Use APA format)


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Handout #1

Listen to Your Heart!

bpm = Beats per Minute

_____ Bat = A. 20 bpm
_____ Cat = B. 30 bpm
_____ Chicken = C. 44 bpm
_____ Elephant = D. 60 bpm
_____ Giraffe = E. 65 bpm
_____ Guinea Pig = F. 70 bpm
_____ Hamster = G. 90 bpm
_____ Horse = H. 90 – 100 bpm
_____ Human – Adult = I. 100 bpm
_____ Human – Child = J. 150 bpm
_____ Medium Dog = K. 166 bpm
_____ Mouse = L. 205 bpm
_____ Rabbit = M. 249 bpm
_____ Pig = N. 275 bpm
_____ Skunk = O. 250 bpm
_____ Small Dog = P. 450 bpm
_____ Squirrel = Q. 534 bpm
_____ Whale = R. 750 bpm

Fill in the Blank!

A blue whale heart can weigh as much as a __________.

Octopuses have __________ hearts.

Your heart is about as big as your __________.

Your heart beats ________________ times a day. It sends __________ gallons of blood through your body each day.

When you exercise, your heart rate ranges from ________ to ________ beats per minute.
Handout #2

**Your Heart Beat!**

1. **Resting Heart Rate** = Number of heart beats in one minute while sitting

   Number of heart beats in 15 seconds = ________ x 4 = ________ bpm
   ________ bpm = YOUR Resting Heart Rate

2. **Active Heart Rate** = number of Heart Beats in one minute after being active, playing, or exercising

   Number of heart beats in 15 seconds = ________ x 4 = ________ bpm
   ________ bpm = YOUR Active Heart Rate
Listen to Your Heart! - KEY

bpm = Beats per Minute

_R_ Bat  A. 20 bpm
_I_ Cat  B. 30 bpm
_N_ Chicken  C. 44 bpm
_B_ Elephant  D. 60 bpm
_F_ Giraffe  E. 65 bpm
_O_ Guinea Pig  F. 70 bpm
_P_ Hamster  G. 90 bpm
_C_ Horse  H. 90 – 100 bpm
_D_ Human – Adult  I. 100 bpm
_H_ Human – Child  J. 150 bpm
_G_ Medium Dog  K. 166 bpm
_Q_ Mouse  L. 205 bpm
_L_ Rabbit  M. 249 bpm
_F_ Pig  N. 275 bpm
_K_ Skunk  O. 250 bpm
_I_ Small Dog  P. 450 bpm
_M_ Squirrel  Q. 534 bpm
_A_ Whale  R. 750 bpm

Fill in the Blank!
A blue whale heart can weigh as much as a ___car______.

Octopuses have ___3______ hearts.

Your heart is about as big as your ___fist______.

Your heart beats ___100,000_______ times a day. It sends ___2,000_________ gallons of blood through your body each day.

When you exercise, your heart rate ranges from ___130___ to ___133___ beats per minute.