

Listen to Your Heart

Grade Level
 K - 2

Lesson Length
 60 minutes

Related STEM Careers

- Cardiologist
- Sports & Fitness Nutritionist
- Athletic Trainer

4H Life Skills

- Exercise is important!

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

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.

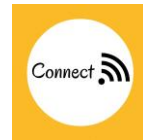


Enrichment/Additional Projects

- 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)

Amazing Heart Facts. (n.d.). Retrieved February 10, 2016, from <http://www.pbs.org/wgbh/nova/heart/heartfacts.html>

Blue Whale. (2017, August 07). Retrieved December 01, 2017, from <https://www.nationalgeographic.com/animals/mammals/b/blue-whale/>

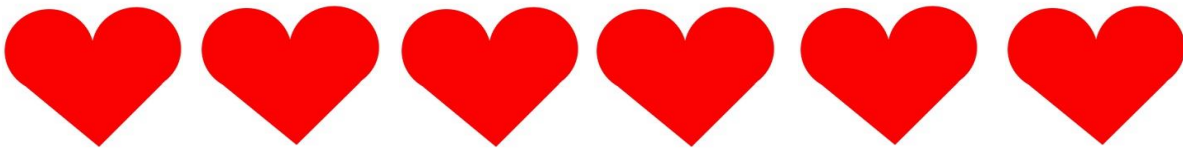
Fielder, S. E. (n.d.). Resting Heart Rates - Appendixes. Retrieved December 01, 2017, from <http://www.merckvetmanual.com/appendixes/reference-guides/resting-heart-rates>

Fleming, S., Thompson, M., Stevens, R., Heneghan, C., Pluddemann, A., Maconochie, I., . . . Mant, D. (2012). Normal ranges of heart rate and respiratory rate in children from birth to 18 years of age: a systematic review of observational studies. *Yearbook of Pediatrics*, 2012, 521-523. doi:10.1016/j.yeped.2011.06.096

Nuwer, R. (2013, October 31). Ten Curious Facts About Octopuses. Retrieved February 10, 2016, from <https://www.smithsonianmag.com/science-nature/ten-curious-facts-about-octopuses-7625828/>

Watkins, T. (n.d.). Animal Longevity and Scale. Retrieved December 01, 2017, from <http://www.sjsu.edu/faculty/watkins/longevity.htm>

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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!

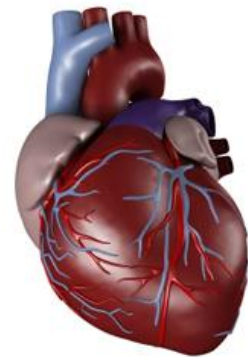
A blue whale heart can weigh as much as a _____.

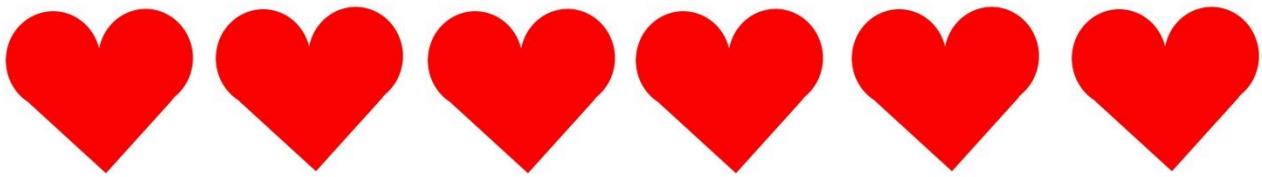
Octopuses have _____ hearts.

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

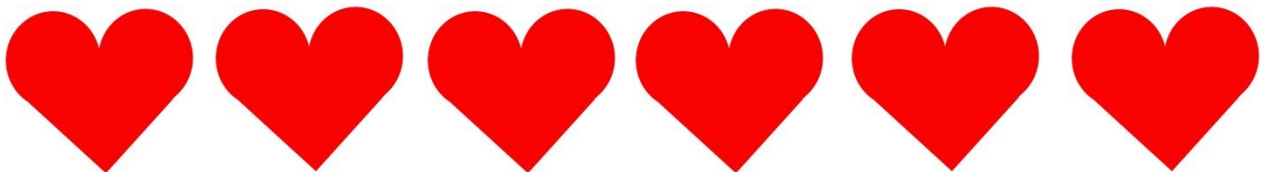
Your Heart Beat!

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**



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

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

