While We Wait – Workshop Zoom Settings

- Set your view settings to “Speaker View” to better see who is talking
- Keep your microphone muted (camera optional) outside of breakout rooms.
- Feel free to use the chat to let us know:
  - where you’re joining from
  - the organization or educational institution
  - Has your consumption of sugary and caffeinated beverages increased during distance learning?

The Meeting will begin at 10:02 AM PST

Oregon State University
Precollege Programs

Zoom Community Agreements

We recognize that the virtual world presents new challenges. In order to do our best to maintain a space of inclusivity, productivity, and respect, we ask that we all agree to the following:

- Chat is open for questions, comments, and concerns, but all communication must be respectful.
- Keep your microphone muted outside of breakout rooms.
- Be patient and understanding with others regarding technology. We all have varying levels of access to and familiarity with technological resources.
- We acknowledge you likely are working from home.

Anyone who violates the agreements or otherwise disrupts our Zoom community will be removed by our moderator.

Zoom Community Agreements: Breakouts

- Join your breakout room when prompted
- Remain in your breakout room during end countdown. You will be automatically brought back to the main session.
- Share without expectations. What works for one organization may not necessarily work for others.
- Stories stay, lessons leave. Don’t distribute what you heard from someone unless you have permission to do so.

Exploring Food Science, Safety, and Nutrition

OSU Precollege Programs; OSU Food Science Department; Oregon Agriculture in the Classroom

USDA –National Institute of Food and Agriculture - SPECA grant

- Promote and strengthen secondary and two-year post secondary education in food, agriculture, natural resources and human sciences to create career awareness and readiness to strengthen the workforce.
- Partnership with Oregon State University's , SMILE Program, College of Agriculture and the Department of Food Science Technology and Manufacturing and Oregon Agriculture in the Classroom Foundation.
- Undergraduates in Dr. Li's spring term food science course designed lessons around food sciences for middle school students creating an opportunity to communicate science to different audiences.
- Intent was to deliver these lessons to teachers and students spring term, due to disruptions from Covid 19, we are doing this outreach virtually.

NGSS Connections

- Science and Engineering Practices:
  - Analyzing and interpreting data
  - Engaging in argument from evidence
- Cross Cutting Concepts:
  - Cause and Effect

Communicating Food Science: A public health imperative

- Food safety
  - Outbreaks, recalls
- Nutrition
  - Healthy diet, healthy eating habits
  - Malnutrition epidemic
- Environment protection
- Marketing claims in consumer foods
- Formation of regulations and policies

"TOXIN:
HAVING THE EFFECT OF A POISON"

Engaging the general public is the key

- We should do it early!
- Contextualizing science via food science
  - Chemistry
  - Biology (and microbiology)
  - Engineering

- Inspiring students to become food scientists and technologists
  - Those with culinary interest
  - Foodies
  - Research in chemistry, human health, etc.

Food science is cool science

Are you currently bringing in food science into your classroom? If so how?

Energy Drinks and Adolescent Health

Brooke Eilersen
Mary Graham
Suzy VanderGheynst-Karagosian

Learning Objectives

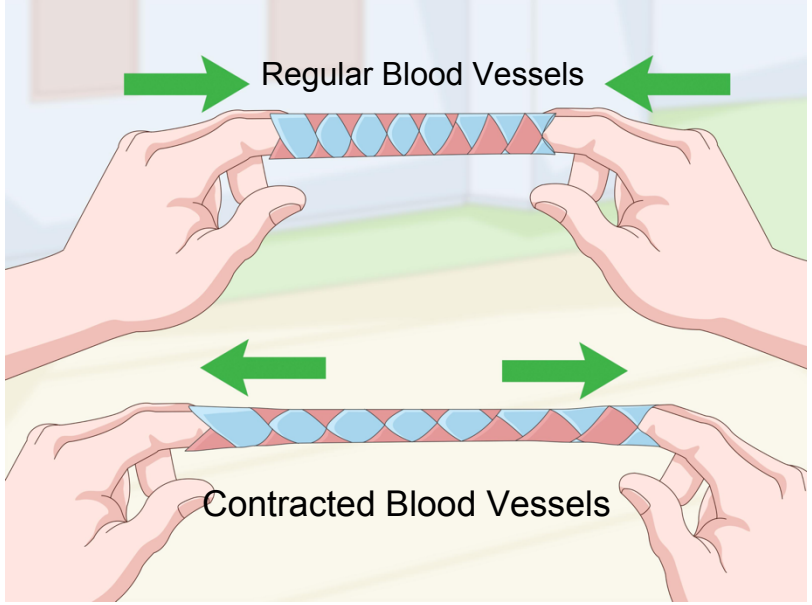
After this lesson you should be able to :

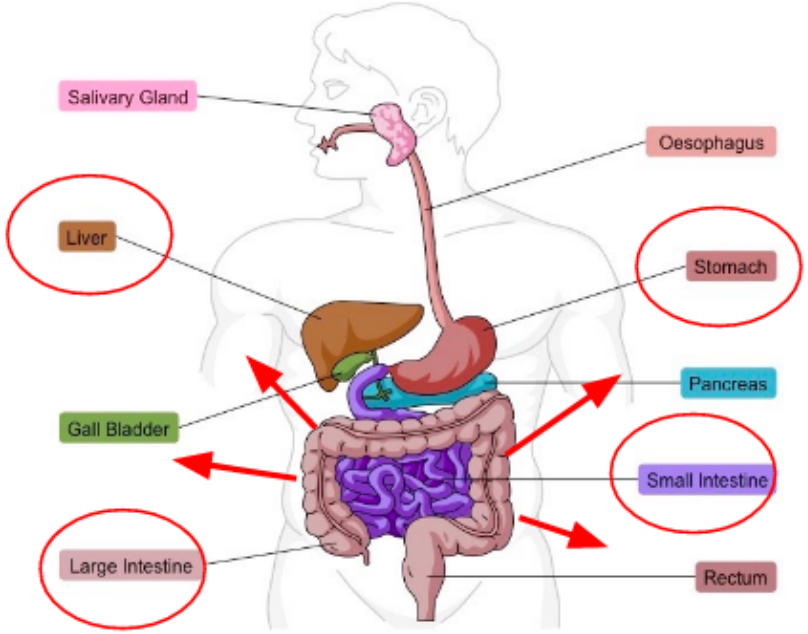
- Understand what an energy drink is, including overview of main ingredients and their function
- Understand a general overview of what caffeine is and how it can affect your physical and mental health
- Understand that the consumption of energy drinks in moderation is important to consider

Objectives

Students can contextualize:

- Science in the lesson builds on basic science of the human body and topics related to health that students have already had exposure to
- By discussing energy drinks and caffeine, things middle schoolers are familiar with, they will be able to learn the information while relating it to past experiences





Next Generation Science Standards

Science and Engineering: Obtaining, evaluating and communicating information

Disciplinary Core Ideas: LS1: Structure and Function

Cross-Cutting Concepts: Cause and Effect

Lesson Logistics

45 Minute Lesson

Materials:

- Worksheet
- Countable objects (ex. Dried pasta/beans, m&m's, beads)
- Clear Cups
- Internet enabled device (ex. Laptop, ipad)

Provided Resources

PowerPoint Presentation:

- Visuals and text that explain concepts to students

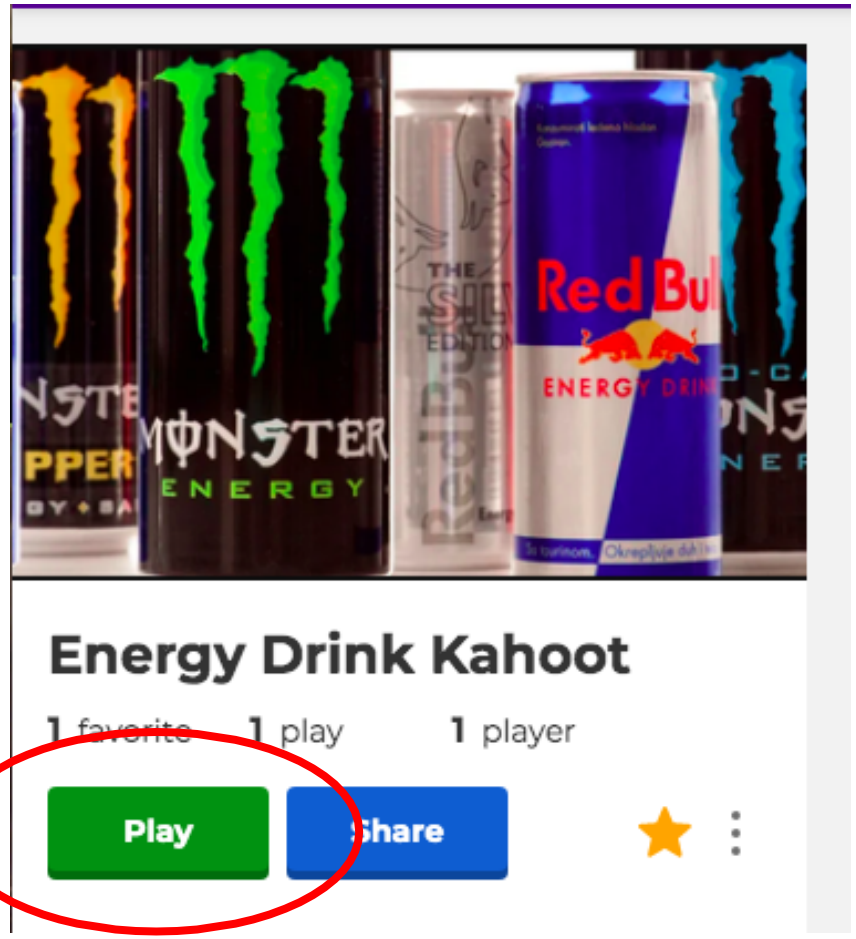
Kahoot:

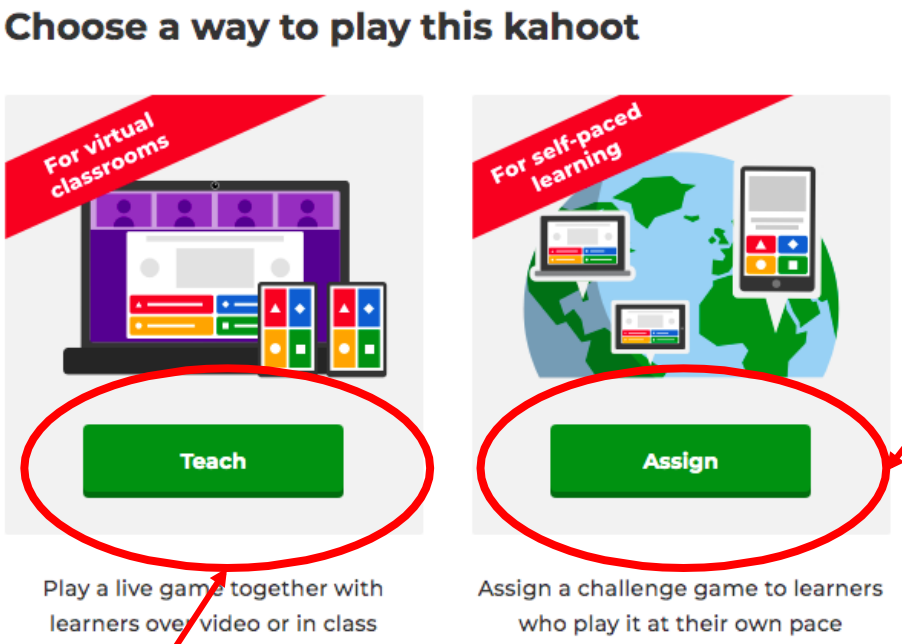
- Questions to engage students
- Beginning and exit quizzes to measure learning

Worksheet

- Research Activity
- Group Activity
- Hands on Activity

Kahoot How To

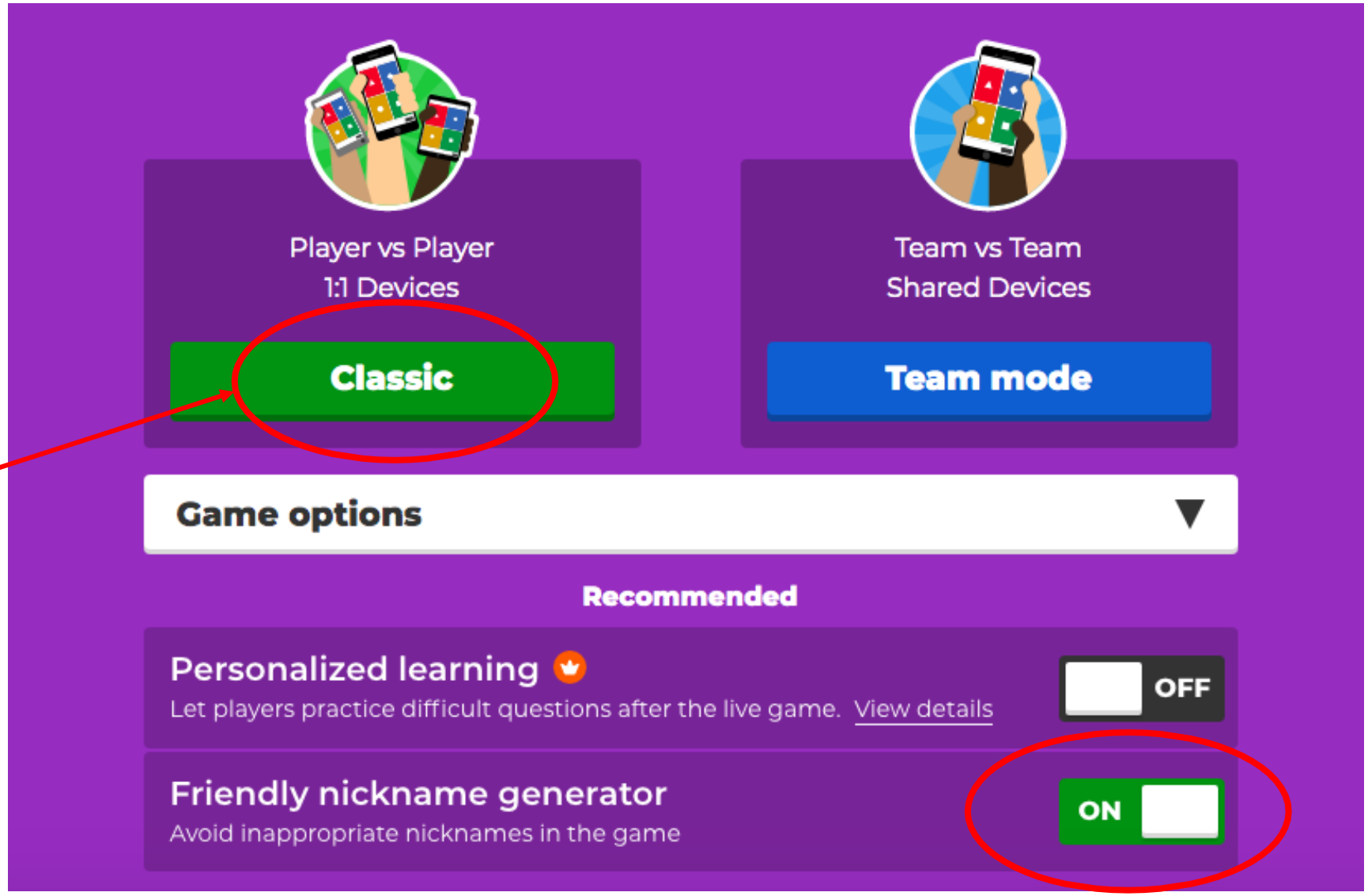




Students play from home on their own time

Students all play at the same time in class or over a zoom class

One person to a device



!

Intended Outcomes

Students who complete this lesson should have gained new insight on:

- The impact the consumption of energy drinks on their body
  - Slides on powerpoint
  - Research activity
- The contents of a typical energy drink and purpose of ingredients
  - Research activity
  - Hands on activity
- Consumption in moderation is important to consider
  - Discussions
  - Kahoot

Information to help answer any questions students may have

- https://www.verywellhealth.com/effects-of-caffeine-on-teenagers-4126761
- https://www.healthline.com/health-news/children-how-caffeine-harms-the-developing-brain-092513#1
- https://www.webmd.com/mental-health/news/20020801/is-caffeine-bad-for-your-heart#1
- https://www.nccih.nih.gov/health/energy-drinks
- https://www.healthline.com/nutrition/energy-drinks

SUGAR CONTENT IN BEVERAGES AND ITS EFFECT ON HUMAN HEALTH

Lesson Attributes

- Grade Level: 6th-8th
- Content Area: Chemical Reactions and Everyday Life
- Lesson Time: 45 to 60 minutes

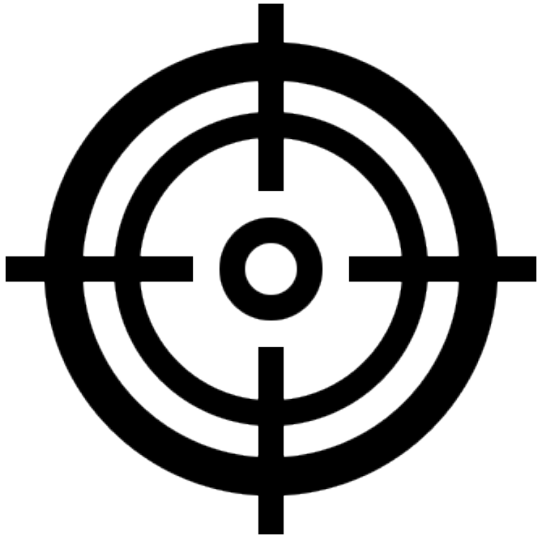
Next Generation Science Standards

- Scale Proportion and Quantity
- Structures and Functions
- Systems Models

Sugar – It’s in EVERYTHING

Objectives

- Visibly quantify the amount of sugar present in frequently consumed fruit juice
- Understand sugar component in diets
- Experiment with different concentrations of solute in solution
- Understand how chemical compositions of a solution (water) changes with the addition of solutes (sugar).



Activity 1: Sugar Types

Materials Needed:

- Fruit juice
- Clear cups
- Sugar (cane, brown, corn syrup, stevia, honey, etc)
- Water
- Weight balance (or measuring cups)

Activity 1: Sugar Types

	Overall Taste	Sweetness ranking (circle)
Sugar #1: _____		1 2 3 4
Sugar #2: _____		1 2 3 4
Sugar #3: _____		1 2 3 4
Water		1 2 3 4
Fruit Juice:_____		1 2 3 4

Activity 2: Sugar Concentrations

Materials Needed:

- Clear cups
- Sugar (cane, brown, corn syrup, stevia, honey, etc)
- Water
- Weight balance (or measuring cups)

Part 2: Sugar Concentrations

Sugar Type	Concentration 1 (% w/v)	Concentration 2 (% w/v)	Concentration 3 (% w/v)
Cane Sugar Concentration	5	25	50
Sweetness Ranking (circle)	1 2 3	1 2 3	1 2 3

Key Takeaways

- Chemical composition of solute and solvent.
- Effects of the sugar concentration on the sweetness.
- Comparing the sugars and the fruit juice.
- Personal insights on sugar consumption.

Questions

Caffeine and human health

By Ben Gilbert, Kyler Massey, and Jasmin Yang
FST 385 Spring 2020
Teaching Mentor: Brittany Capell

Objectives

- Understand the effects of caffeine on human health
- Exposure or introduction to the scientific process.

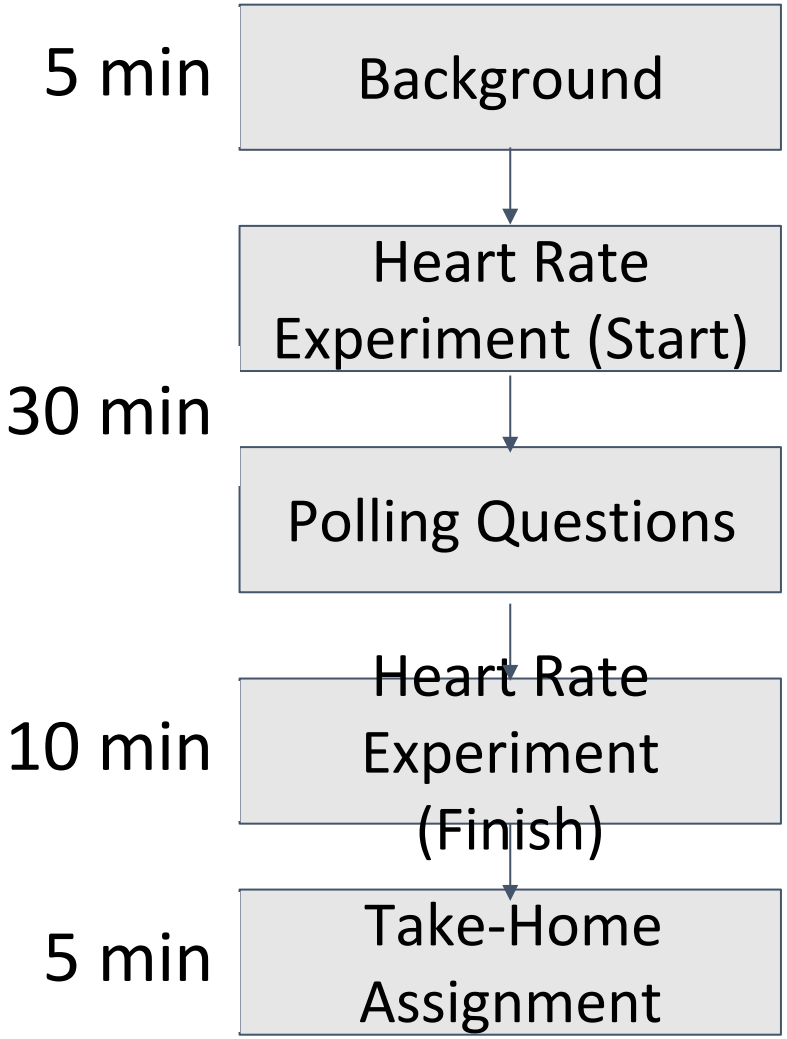
Human health

- Learn what caffeine does to the body
- Positive effects
- Negative effects
- Other contents of caffeinated beverages

Scientific process

- How experiments can work
- Engagement in data collection
- Formation of a hypothesis

Methods: Overall Lesson Plan



Preparation:

- Student Survey (optional)
- Adult Volunteers for Heart Rate Experiment

Background:

- What is caffeine?
- What does it do to the body?
- Additional resources

Methods: Heart Rate Experiment

Identify Adult Volunteers

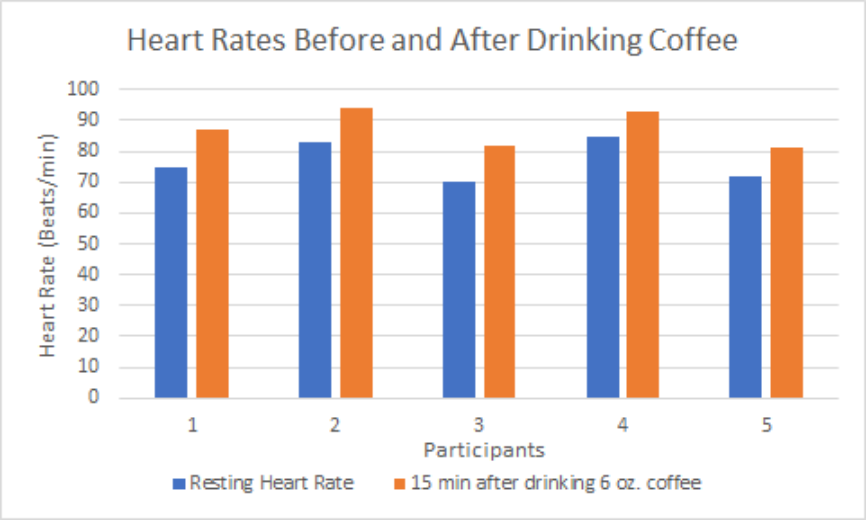
Brew Coffee

Measure Resting Heart Rate

Drink 6 oz. coffee
Wait 15 min.

Measure Final Heart Rate

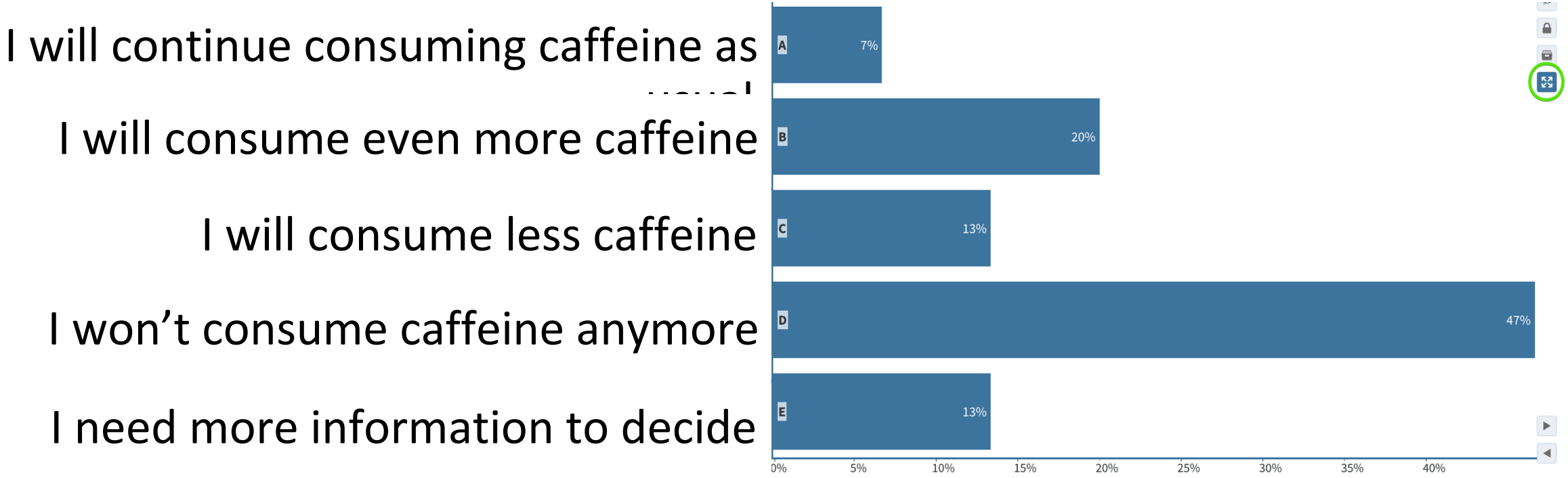
Participant #	Resting Heart Rate (beats/min)	Heart Rate after Coffee (beats/min)	Difference in Heart Rates (beats/min)
1	75	87	12
2	83	94	11
3	70	82	12
4	85	93	8
5	72	81	9



https://www.health.harvard.edu/heart-health/want-to-check-your-heart-rate-heres-how
https://www.precisionnutrition.com/coffee-and-hormones

Methods: Polling Question: Poll Everywhere

After learning about the health effects of caffeine, how does this affect your caffeine consumption?



Anticipated learning outcomes:

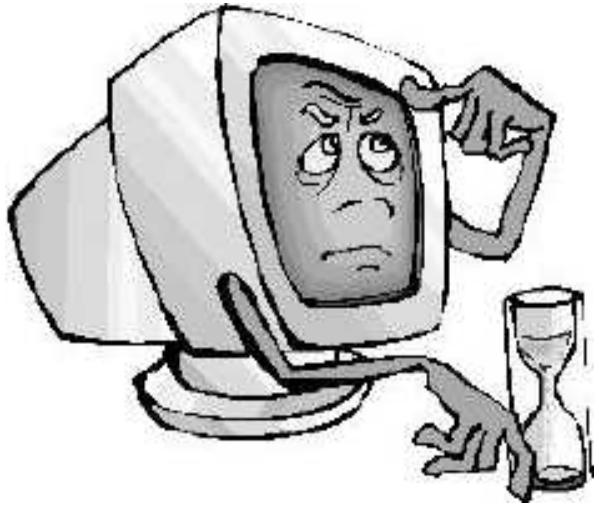
Students will be able to..

- **Describe** the cause and effect relationship between caffeine and heart rate
- **Discuss** the importance of the scientific method when exploring phenomena
- **Explain** the similarities and differences between various caffeinated beverages
- **Relate** lesson material to their own habits and make informed decisions on what may be healthy or otherwise

Remote Learning: Potential Pitfalls

Potential Hurdles

- Data Collection
- Statistical Integrity
- Student Engagement



Recommended Solutions

- Pre-collected Data
- Continued Polling

Distance learning modifications and questions

Thank you for attending Questions?

- PDU will be sent to each attendee if registered through Ideal-Logic. If you do not receive a PDU please email us at precollege@oregonstate.edu

- We have one more session next Tuesday from 10-11am PST register here: https://precollege.oregonstate.edu/virtual-professional-development-teachers