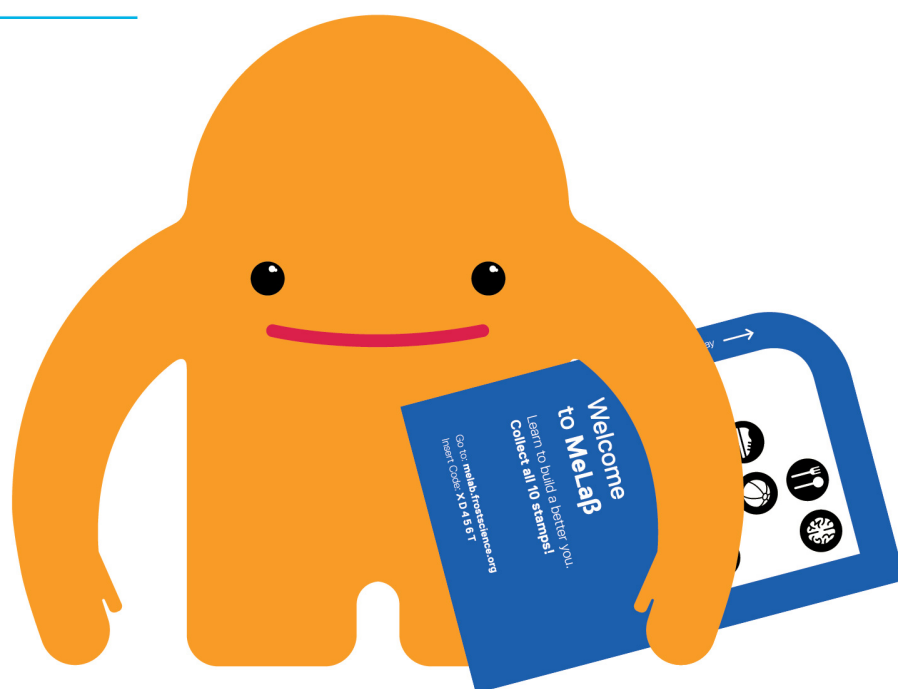




MeLaß

Grades 6-8



Contents

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Questions? Ready to book your field trip? | Please visit: www.frostscience.org/fieldtrips



Overview

The **MeLaß** exhibition is an educational health and wellness experience where students can learn about the effects of their everyday choices on their mental and physical health. Focusing on the power of decision-making and goal setting, **MeLaß** allows each visitor to become the experiment through simulations that explore different outcomes, all while encouraging higher health awareness and improved conscious choices.

Educational Standards

6th Grade

Science Big Idea 14 – Organization and Development of Living Organisms

- SC.6.L.14.5 Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain homeostasis.

Health Education Big Idea 2 – Internal and External Influence

- HE.6.C.1.2 Describe how the physical, mental/emotional, social and intellectual dimensions of health are interrelated.

7th Grade

Science Big Idea 11 – Energy Transfer and Transformations

- SC.7.P.11.2 Investigate and describe the transformation of energy from one form to another.

Health Education Big Idea 5 – Decision Making

- HE.7.B.5.5 Predict the short and long-term consequences of engaging in health-risk behaviors.

8th Grade

Science Big Idea 1 – The Practice of Science

- SC.8.N.1.6 Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence.

Science Big Idea 4 – Science and Society

- SC.8.N.4.2 Explain how political, social, and economic concerns can affect science, and vice versa.

Health Education Big Idea 8 – Core Concepts

- HE.8.C.1.2 Analyze the interrelationship between healthy/unhealthy behaviors and the dimensions of health: physical, mental/emotional, social, and intellectual.

Background Information

MeLaß visitors get to investigate their everyday choices through five zones (Eat, Move, Relax, Connect and Learn) that offer the latest health science and demonstrate the interrelated effects of their everyday lifestyle choices and activities. Each exhibit zone reveals how the body and mind function together, highlights related current research, showcases innovative medical technology, and shares what science has to say about the different outcomes due to changes in behavior. Students will be welcomed into a lively and vibrant space by a trained **MeLaß** facilitator, and will be able to explore together with their co-investigator, **ßeta**, a digital character they get to personalize as they collect activity stamps and complete challenges in each zone.

The **MeLaß** zones:

- EAT:** Food is fuel for our bodies and our brains. Our digestive systems break down the food we eat into energy and nutrients. Our diets are influenced by external and internal factors including our emotions, social surroundings and physical environment.
- MOVE:** Our bodies need daily movement. Exercising regularly can have multiple physical and mental benefits including a stronger heart, a reduced risk of heart disease, and improved sleep and mood.
- RELAX:** Adults and children all experience different types of stress and have different ways to release that stress. Constant and unmanaged stress can have physical and mental health effects. Getting an appropriate amount of sleep is one way that each of us can adopt to let our bodies rest and recover.
- CONNECT:** Social connections are important, and the lack of social interaction and strong personal bonds can have negative effects on our physical and mental health. Technology has increased opportunities for us to connect, allowing ideas – but also disease – to spread further and faster than ever before.
- LEARN:** The connections in our brains are continuously shaped by our choices and experiences. Our daily behavior around diet, exercise, stress management and social interactions all impact our brain health.

MeLaß Exhibition Key Questions

- What choices do you make every day that affect your health and happiness?
- What factors in your social and physical environment influence your choices?
- What choices or activities do you think you could change to feel healthier and happier?

Pre-Activity

See pages 5 – 12 for pre-activity instructions and presentation.

Field Trip Experience

All Museum field trips are a three-hour experience, offered Monday through Friday, beginning at 9:30 a.m. or 10:00 a.m. Each field trip includes three experiences of the teacher's choice and time for lunch. Upon arrival, the teacher will be provided with a specific schedule for his/her visit based on the three chosen experiences. Additional information regarding field trip logistics is provided in the field trip package that each teacher will receive upon booking of a field trip. For **MeLaß**, all students will receive a **MeLaß** activity card before entering the exhibition. This card is a central part of the exhibition experience. Teachers and chaperones will be provided with a **MeLaß** instructional guide (please see page 21).

During the field trip, students will encounter a variety of experiences. To enhance these learning opportunities, facilitator cards are provided at arrival for all teachers and chaperones who would like to use them (please see pages 22 - 26 for a sample). The facilitator cards include prompting questions, additional content, and exhibition location maps which show where in the exhibition one can find content related to that card.

Post-Activity

See pages 13 - 20 for post-activity instructions and presentation.

Select Recommended Extensions:

Grade 6: Body Systems and Homeostasis MEA with Dr. Homeostasis

<http://www.cpalms.org/Public/PreviewResourceLesson/Preview/67470>

Grade 7: American Heart Association – What or Who Influences Your Food Choices?

http://www.heart.org/idc/groups/heart-public/@wcm/@global/documents/downloadable/ucm_314238.pdf

Grade 8: Zika Virus Arrives in the Americas

<http://www.cpalms.org/Public/PreviewResourceLesson/Preview/163262>

Pre- and Post-Field Trip Resources

Pre-Field Trip Activity: Think-Puzzle-Explore (A Visual Thinking Routine)

Overview

Students will participate in an activity to excite curiosity, reveal prior knowledge, and encourage discussions. In Think-Puzzle-Explore students focus on one of the topics related to the **MeLaß** exhibition and compose questions that encourage them to probe deeper into their own understanding, as well as identify ways they can further investigate.

Objective

Students will spotlight prior knowledge of the topic and use that information to produce questions that guide them in further investigation.

Materials

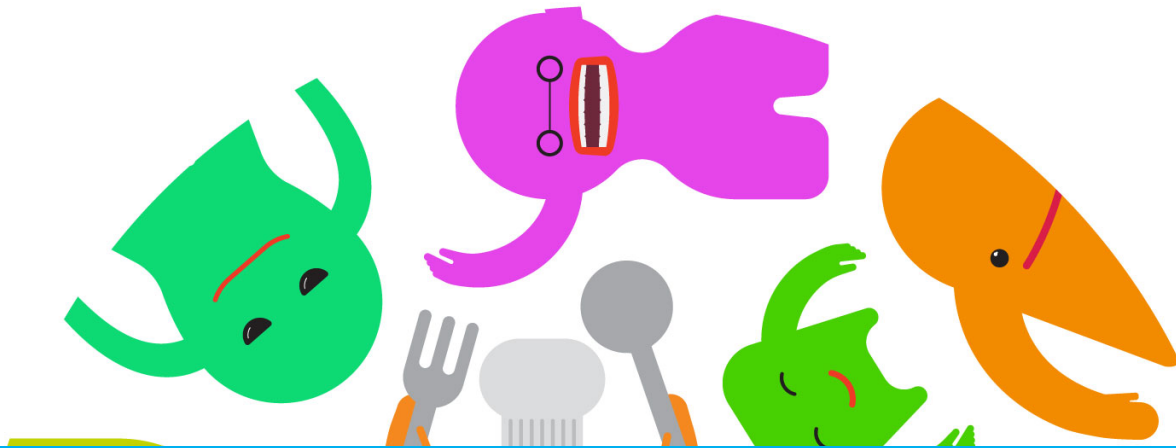
- Computer, white board and projector
- Sticky notes
- Writing utensils - pencils, pens, etc.
- Printed student worksheets (page 11) or their own paper
- **MeLaß** Grades 6-8 Pre-Field Trip Presentation (pages 6 - 12)

Activity Steps

1. Test the presentation on your computer: open the document, go to "View" on the menu bar, then click the full screen option ("Enter Full Screen" or "Full Screen Mode").
2. Use the presentation to guide the activity.
3. Have students choose (or assign students to) one of the five topics listed in the presentation to focus on for their Think-Puzzle-Explore activity (see pages 7 - 9 – **MeLaß** Topics in presentation).
4. Have students answer the following questions:
 - a. What do you **think** you know about this topic?
 - b. What **puzzles** you about this topic? What questions do you have?
 - c. How can you **explore** this topic?
5. Have students work on answering the questions in small groups by using the student worksheet chart or on their own paper.
6. Have students write their favorite responses on sticky notes and place them under the correct heading: Think, Puzzle, or Explore, and topic area: Eat, Move, Relax, Connect, or Learn, on the chart projected on the board.
7. Conclude with a class discussion about the many responses generated by the activity.

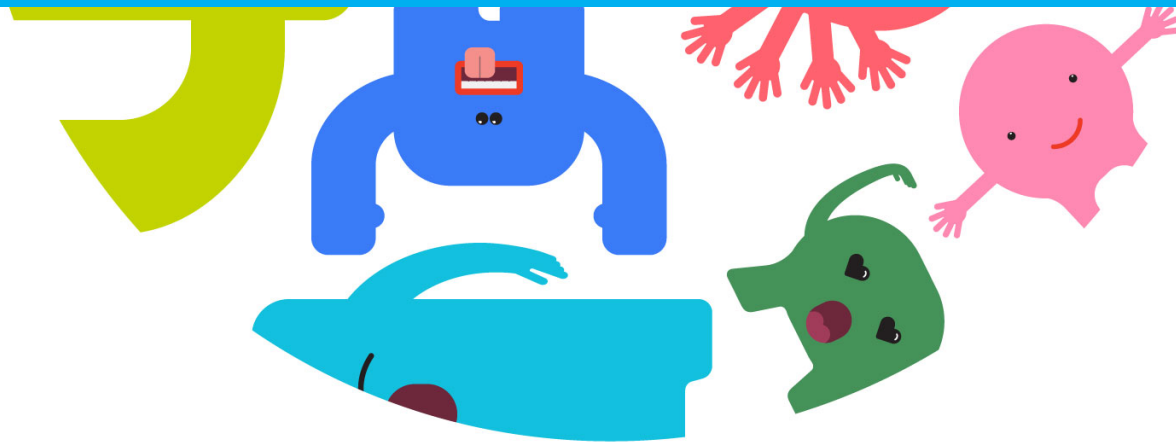
Helpful Hint

Have students focus on the Think and Puzzle sections before tackling Explore. This may aid in brainstorming strategies for investigating certain questions in the Explore section.



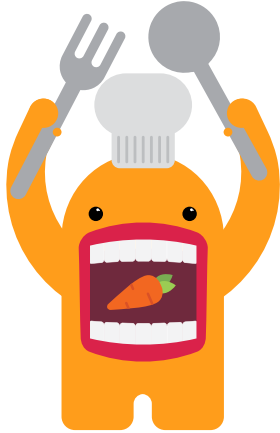
Frost Science | MeLaß Pre-Field Trip Activity | 6TH - 8TH Grade

THINK - PUZZLE - EXPLORE



MeLaß Topics

Many factors and choices affect our health and happiness.
Choose one of the five topics to explore.



EAT

Food is fuel for our bodies and our brains. Our digestive systems break down the food we eat into energy and nutrients. Our diets are influenced by external and internal factors including our emotions, social surroundings and physical environment.



MOVE

Our bodies need daily movement. Exercising regularly can have multiple physical and mental benefits including a stronger heart, a reduced risk of heart disease, and improved sleep and mood.

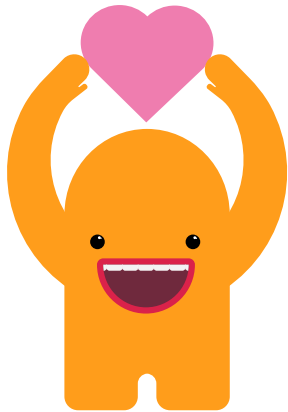
MeLaß Topics

Many factors and choices affect our health and happiness.
Choose one of the five topics to explore.



RELAX

Adults and children all experience different types of stress and have different ways to release that stress. Constant and unmanaged stress can have physical and mental health effects. Getting an appropriate amount of sleep is one way that each of us can adopt to let our bodies rest and recover.

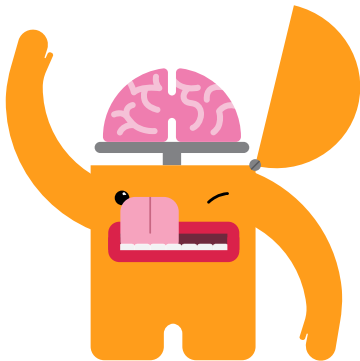


CONNECT

Social connections are important, and the lack of social interaction and strong personal bonds can have negative effects on our physical and mental health. Technology has increased opportunities for us to connect, allowing ideas – but also disease – to spread further and faster than ever before.

MeLaß Topics

Many factors and choices affect our health and happiness.
Choose one of the five topics to explore.



LEARN

The connections in our brains are continuously shaped by our choices and experiences. Our daily behavior around diet, exercise, stress management and social interactions all impact our brain health.

Think – Puzzle – Explore

Write your favorite responses on sticky notes for your topic,
then add them to the chart.

Topic	What do you think you know about this topic?	What puzzles you about this topic? What questions do you have?	How can you explore this topic?
EAT			
MOVE			
RELAX			
CONNECT			
LEARN			

Think – Puzzle – Explore

Write your favorite responses on sticky notes for your topic,
then add them to the chart.

Topic: _____

What do you think you know about this topic?	What puzzles you about this topic? What questions do you have?	How can you explore this topic?

Sample Pre-Field Trip Chart

THINK

PUZZLE

EXPLORE

EAT

How to eat healthy.

I eat every day.

Everybody needs to eat.

I need it to survive

Food has calories

Need to eat for fuel

I know food has calories

To Eat in BALANCE

Food is Fuel for the Brain

What foods fuel me best?

Why are some foods good and others bad?

What's the difference between good and bad fat?

Evolutionarily speaking, why do bad foods taste so good and good foods taste so bad?

Why are certain foods better for you than others?

How do I know how much energy I need?

Why does sugar taste so Good!

Best food to eat to remain healthy?

How long is the small intestine?

Do carrots need exercise?

Listen to Experts

visit your favorite restaurants and talk with the chefs

My talking with people who cook

Eat more vegetables drink more water

Look ~~up~~ on the internet for guidelines

Eat lots of different foods to know what's best

Watch the Magic School Bus

Research calorie requirements

MOVE

It is good for your heart.

Exercise burns calories!

Biking is Fun

It's good for you!

Being Active feels good!

I think exercise can be different than just running

There are different exercises for different parts of body

Gives you energy or makes you tired

higher \heartsuit rate = more calories \heartsuit

How do I maintain consistency?

Which type of exercise is the best?

How much do I need to exercise to eat cake every day?

How many times a week should we exercise

Is there any area I should target?

What gets me most active?

How do I make exercise fun?

How long do you run with when you eat a candy bar?

What is the best sport to play

Join a running club!

Try different activities like dancing & biking my PE teacher

Exercise cleans the mind and keeps the body healthy

Try different exercises

I am someone who is an expert in exercise ~~science~~

Ask my coach what's best before & after practice

Use a calorie calculator online to test different activities.

Pre- and Post-Field Trip Resources

Post-Field Trip Activity: Generate-Sort-Connect-Elaborate (GSCE): Concept Maps (A Visual Thinking Routine)

Overview

After the field trip, students reflect on what they explored and what they learned by completing a concept map. This activity helps students generate connections among different ideas and uncover the mental models they may have developed during their field trip experience. Students will share and explain their concept maps in small groups or with the whole class.

Objective

Students will reflect on their experience at Frost Science and generate connections related to the topic of health and happiness.

Materials

- Computer, white board and projector
- One piece of poster paper per student group
- One piece of paper for each student
- MeLaß Grades 6-8 Post-Field Trip Presentation (pages 14 - 20)

Activity Steps

1. Test the presentation on your computer: open the document, go to "View" on the menu bar, then click the full screen option ("Enter Full Screen" or "Full Screen Mode").
2. Use the presentation to guide the activity as needed.
3. On the piece of paper, ask students to list at least five words/phrases they associate with the phrase "Health & Happiness."
4. Create groups of 5 or less students. Give each group one piece of poster paper.
5. On the poster paper, have students write the phrase "Health & Happiness" in the center of the paper.
6. Have students work in their groups to write the words/phrases they brainstormed onto the poster paper. The words/phrases that they think are more central to the topic of health and happiness should be written towards the center of the poster paper around the phrase "Health & Happiness," and those less relevant towards the edges of the poster paper.
7. Have students draw lines to connect the words or phrases that they think have something in common. Have students write a sentence on each line that explains how they think the words or phrases are connected.
8. Have students expand their concept map by adding new words/phrases and their connections to other words/phrases.
9. Once completed, have students share their concept maps to the whole class. Please see a sample chart on page 20 for reference.
10. Complete with a class discussion about the topic of health and happiness.



Frost Science | MeLaß Post-Field Trip Activity | 6TH - 8TH Grade

CONCEPT MAP



Write down five words or phrases that come to mind
when you hear the phrase...

Health & Happiness

Place words and phrases that are central to health & happiness closer to the starting phrase.



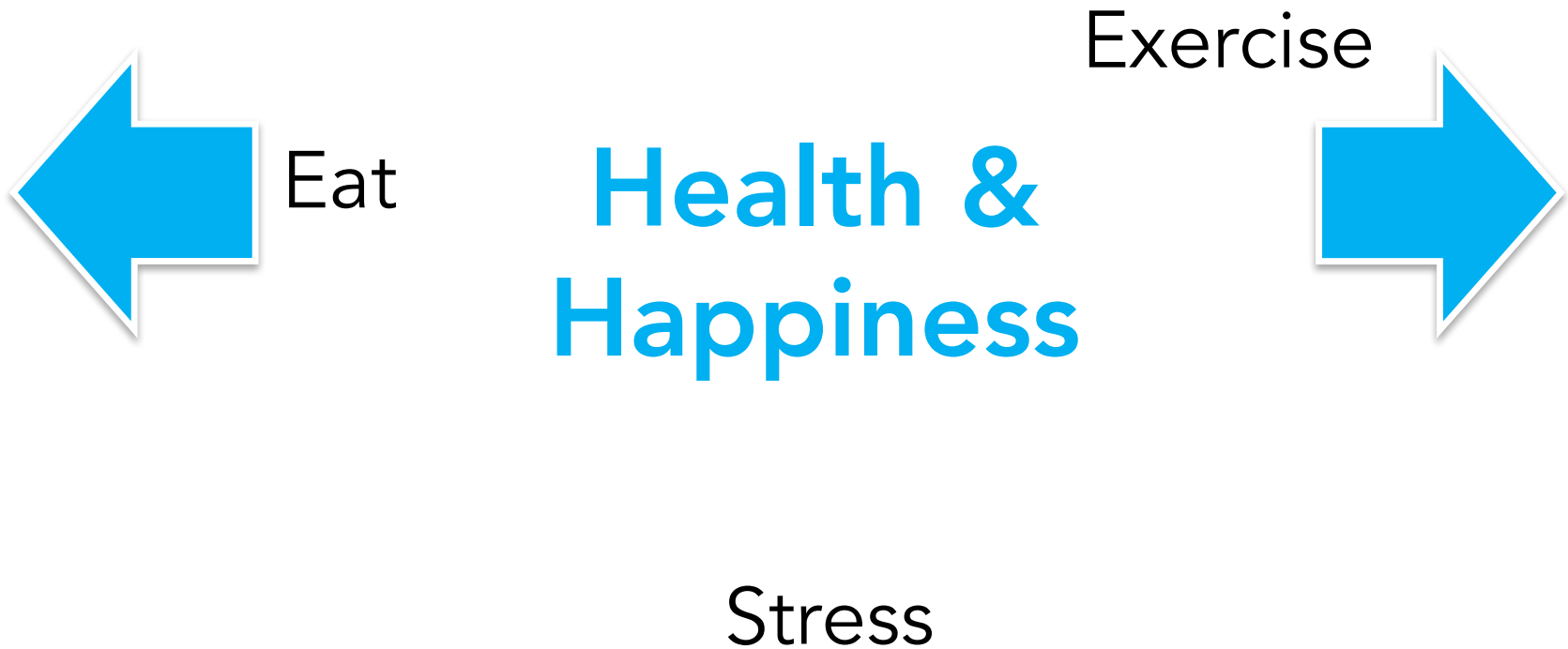
Eat

**Health &
Happiness**



Stress

Place words and phrases less central to health & happiness around the edges of the paper.



Draw lines to connect two words or phrases.
Write your explanation of how they are linked.

Eat

Health & Exercise
Happiness

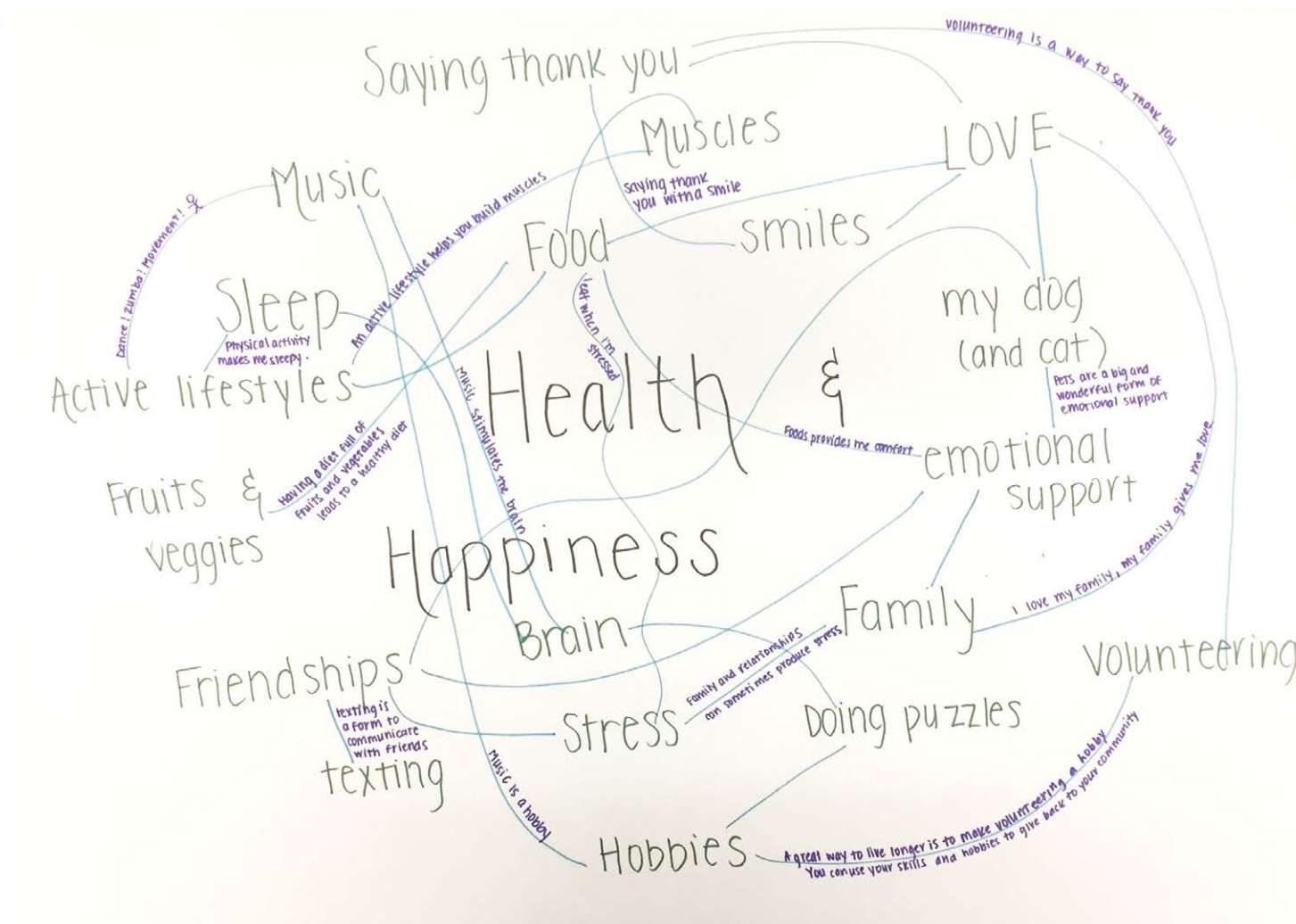
Stress can affect
normal eating habits.

Stress

Keep adding words, phrases, and connections to complete your concept map.



Sample Post-Field Trip Concept Map

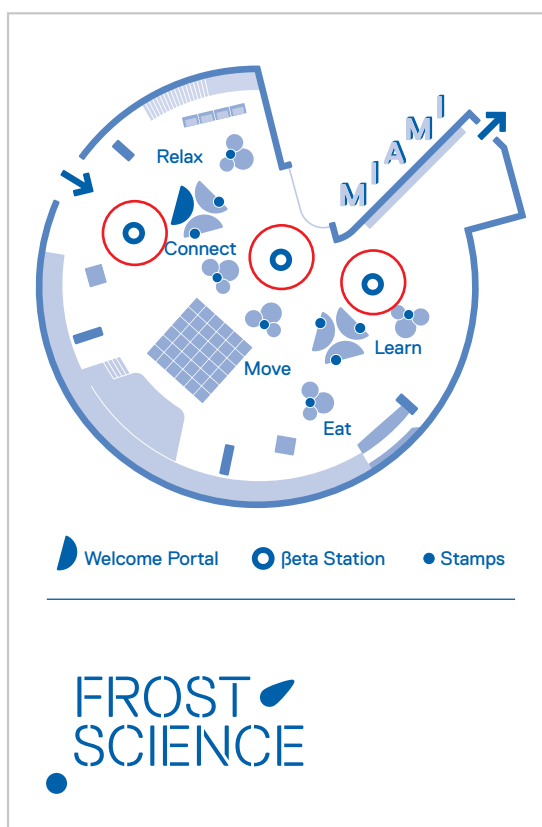


Teacher and Chaperone Guide

- Give each student a MeLaß card.
- Use MeLaß card to collect activity stamps in each zone.
- Scan the card at a β eta Station to create a profile and customize a β eta.
- Keep exploring the zones and checking back in at any β eta Station to unlock accessories.
- Keep card and use unique code to log in online after visit.



Front of MeLaß card.



Back of MeLaß card.

CHECK IN

CONNECT

Ask:

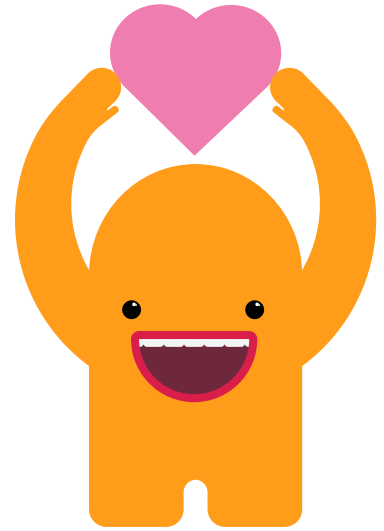
How do you stay connected with others?

Some possible answers include...

- I talk to friends and family members.
- I use social media.
- I have dinner or lunch with others.
- I am part of a team or a club.

Say:

Long-term **loneliness** has been shown to be as bad for your health as smoking or obesity. Talking, listening and even quiet time with others can help you stay connected and improve your **mental and physical health**.



FROST SCIENCE | MeLaß FIELD TRIP



FLOOR PLAN

● CONNECT

CHECK IN

RELAX

Ask:

What happens to your body when you get stressed? Feel relaxed?

Some possible answers for "stressed" include...

- I get nervous.
- I sweat.
- I start breathing more and more heavily.
- My heart beats faster.

Some possible answers for "relaxed" include...

- I feel happier.
- I have more energy.
- I sleep better.

Say:

We all experience stress, there is no avoiding it! Learning to manage stress by relaxing has both physical and mental benefits. Next time you feel stressed try taking four deep breaths. You may notice your heart rate and breathing slowing down and you may feel more calm.



FROST SCIENCE | MeLaß FIELD TRIP



FLOOR PLAN

● RELAX

CHECK IN

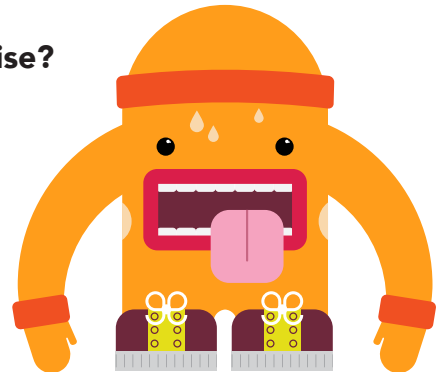
MOVE

Ask:

What happens to your body and your brain when you exercise?

Some possible answers include...

- My heart speeds up.
- I start breathing more and more heavily.
- I burn calories (energy).
- I feel happier or more relaxed afterward.
- I am more likely to be able to concentrate afterward.



Say:

When you exercise, your **heart** and **lungs** need to work harder to deliver more oxygen and blood throughout your body. **Moving** your body regularly helps improve your mood, memory and helps your bones and muscles get stronger, including your heart – it's also a muscle!

FROST SCIENCE | MeLaß FIELD TRIP



FLOOR PLAN

● MOVE

CHECK IN

EAT

Ask:

What happens to your body when you do not get enough food (fuel/energy)? When you eat too much?

Some possible answers for "not enough" include...

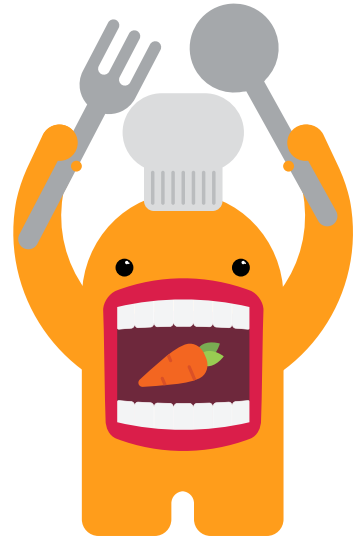
- I get moody.
- I feel tired or sleepy.
- I don't have enough energy.

Some possible answers for "too much" include...

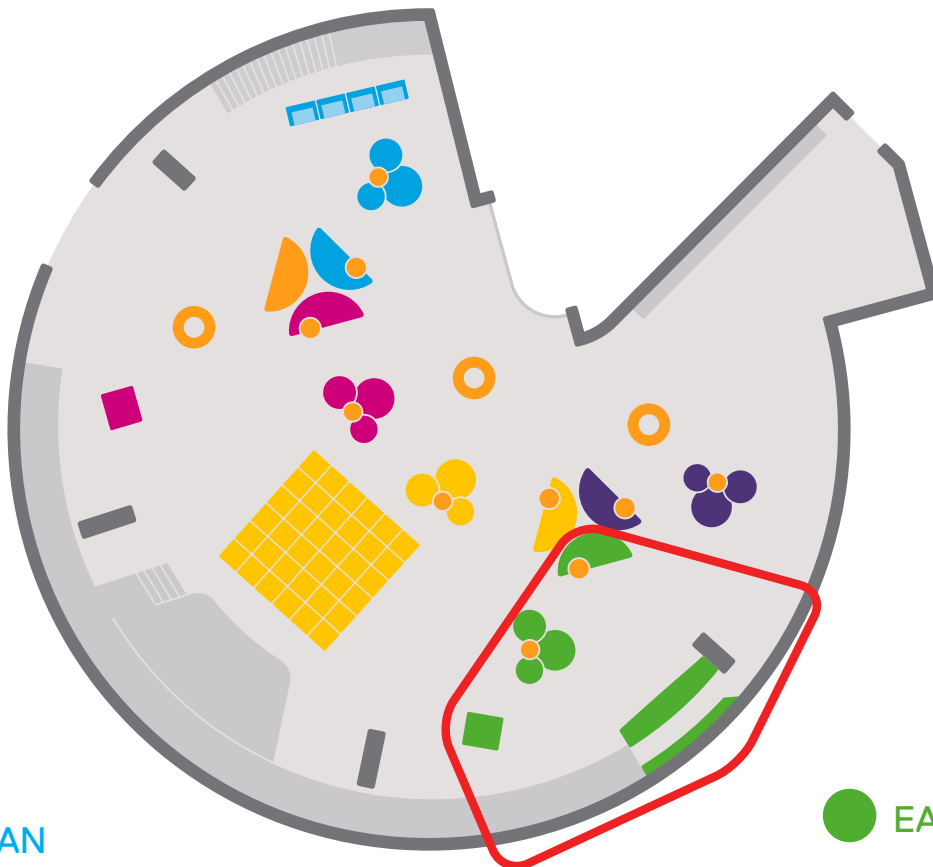
- I feel drowsy.
- I find it hard to concentrate.

Say:

Food is **fuel (energy)** for your body. All foods have different amounts of **calories** and nutrients. Our diets need a **balance** between how much we eat and how much energy we use as well as a balance of carbs, proteins, and fats.



FROST SCIENCE | MeLaß FIELD TRIP



FLOOR PLAN

● EAT

CHECK IN

LEARN

Ask:

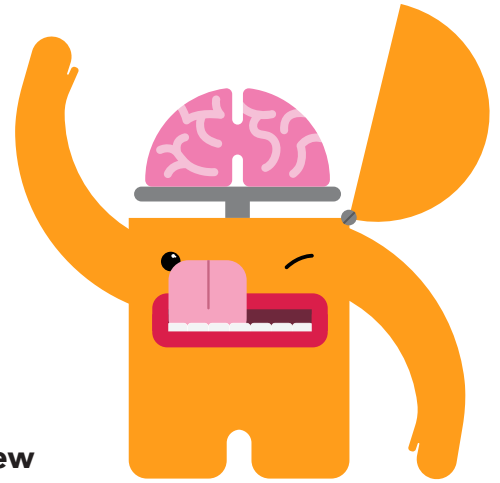
Healthy brain = healthy body! How do you keep your brain active and healthy?

Some possible answers include...

- I keep studying and learning.
- I exercise.
- I don't smoke!
- I eat healthy food.

Say:

Everything you do involves your brain! Every **experience** and **new activity** you have **shapes** your brain. This means that eating, exercising, learning, social connections and relaxing are all linked and important for keeping a healthy and active brain.



FROST SCIENCE | MeLaß FIELD TRIP



FLOOR PLAN

● LEARN