2022 National 4-H STEM Challenge

UNIVERSITY OF GEORGIA
EXTENSION

Georgia 4-H Webinar Expectations

- Join the session with your webcam turned on and a working microphone to actively engage in the session. If microphone is not working, use the call-in phone number. Be sure to mute your microphone until you are ready to speak.
- If you are experiencing technical difficulties that make it difficult for you to engage you must let your instructor or session coordinator know. Copy your PDC as well.
- Type your name and county in the chat box when you arrive and again at the end of the session to be sure you are counted present for the session.
- Actively participate in the session-
    - Engage when prompted
    - Ask questions, give feedback
    - Do not multi-task: Emailing, phone calls, texting, talking to co-workers
- If pre-work was assigned, part of your attendance is to complete the work prior to the session.
- If prompted for session feedback (i.e. follow up evaluation), be sure you complete this to assist in bettering the training experience for future participants.

Failure to adhere to these expectations may result in you not receiving credit for attending the training session.

Welcome!

Kasey Bozeman (she/her)
Extension 4-H Specialist
Georgia 4-H Science Programs

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I acknowledge that I live, learn, and work on the ancestral, traditional and contemporary lands of the ᏣᎳᎩᏗᏯ Tsalaguwetiyi (Cherokee, East) S'atsoyaha (Yuchi), and Mvskoke (Muscogee / Creek) peoples.

Today's Agenda

01
National STEM Challenge Quiz

02
Overview of 2022 Challenge

03
Activity Demonstration

04
Discussion

05
Questions?

Quiz Time

What do you know about the 2022 STEM Challenge?

1

Question #1

What is the topic for the 2022 STEM Challenge?

A: Computer Science

B: Environmental Science

C: Astronomy & Space Science

D: Oceanography

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Question #2

Where can you purchase the 2022 STEM Challenge Kit?

A: Amazon

B: Shop 4-H

C: 4-H Online

D: Walmart

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Question #3

What is the name of the 2022 STEM Challenge?

A: Deep Adventures

B: Explorers of the Deep

C: Ocean Expedition

D: Ocean Robot Test Tank

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Question #4

How many activities are part of the 2022 STEM Challenge?

A: One

B: Two

C: Three

D: Four

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Question #5

Which of these groups is *NOT* a development partner for the 2022 STEM Challenge?

A: Nickelodeon

B: Rutgers University

C: Bayer

D: Facebook

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Overview

History of STEM Challenge and
2022 Topic Introduction

2

National STEM Challenge

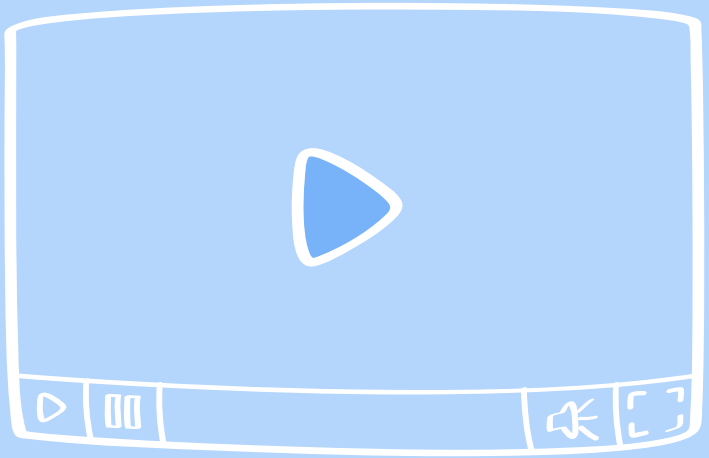
- Developed by National 4-H Council & LGU since 2008
- Hands-on, explorative science activities
- Formerly known as National Youth Science Day (NYSD) & hosted during National 4-H Week*

**Use the resources when it's best for you!*

Online Resources:
4-h.org/parents/4-h-stem-challenge

- Facilitator Guide
- Youth Guide
- Media Kit

includes Spanish resources



Three Activities

Ocean Robot Test Tank

Prepare an Ocean Robot for a Research Mission

Ocean Expedition Board Game

Group Board Game about the Oceans

Ocean Communication

Creating PSAs about Ocean Challenges

Planning Programming

	Robot	Game	PSAs
Full Version	90 Minutes (Activity parts I, II, & III)	65 Minutes (Board game & trivia)	90 Minutes (Matching cards, pre discussion, and group discussion PSA)
Short Version	45 Minutes (Activity parts I & II)	45 Minutes (Board game only)	40 Minutes (Matching cards, and group discussion PSA)

Teaching Method

Engage

Set the stage for learning. Spark interest and spur youth to build on their prior knowledge by recalling past or present connections that are relevant to the learning experience.

Explore

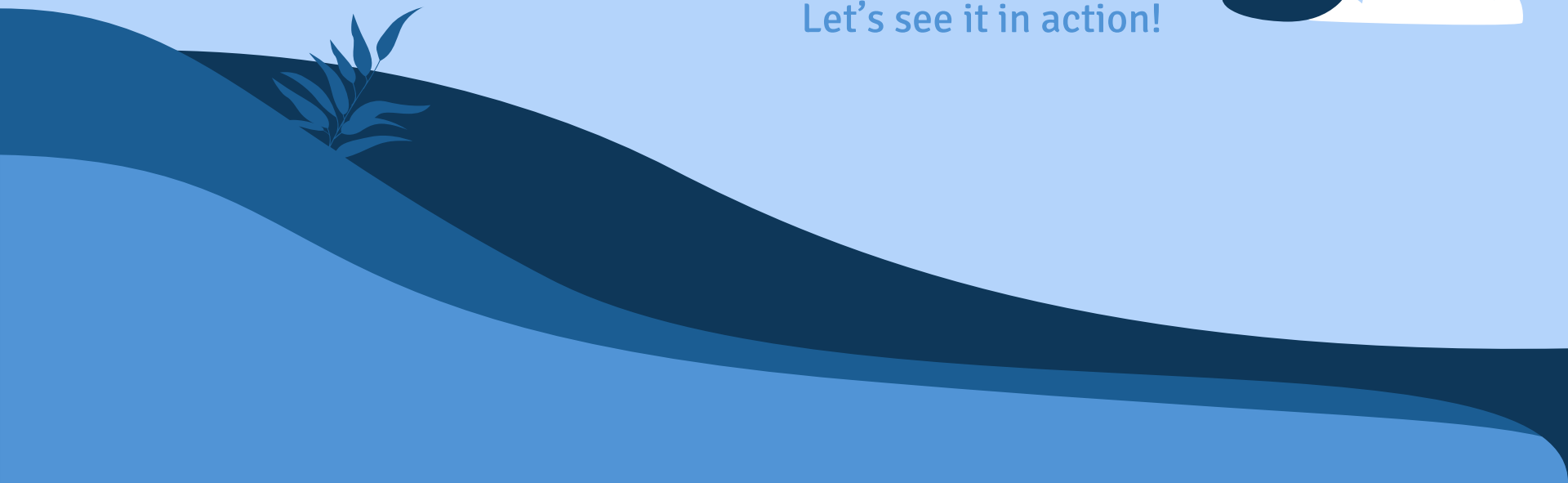
Encourage interest and questions. Engage in activities that model real phenomena and serve as a reference point for the entire group.

Make Meaning

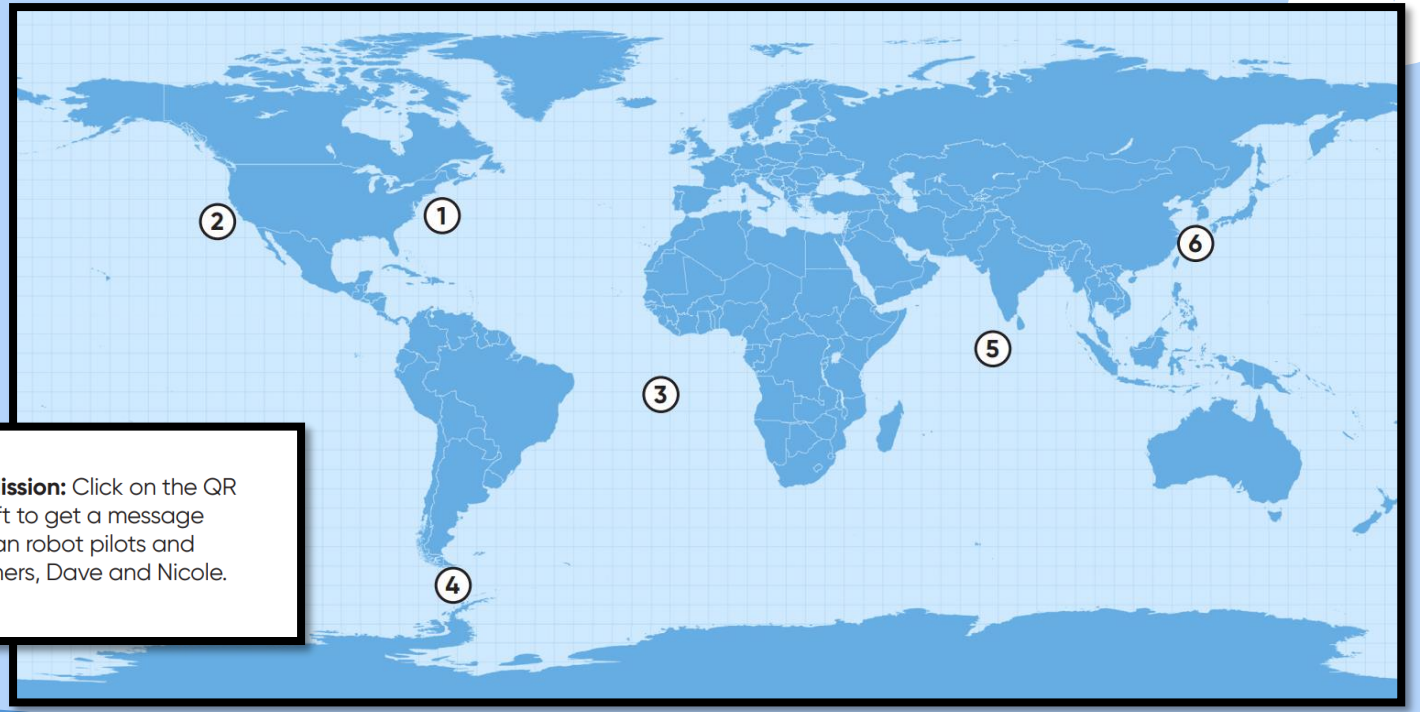
Ask youth to generate explanations of the concepts they are learning and to reflect on what they have learned and how they learned it.

Activity Demonstration 3

Let’s see it in action!

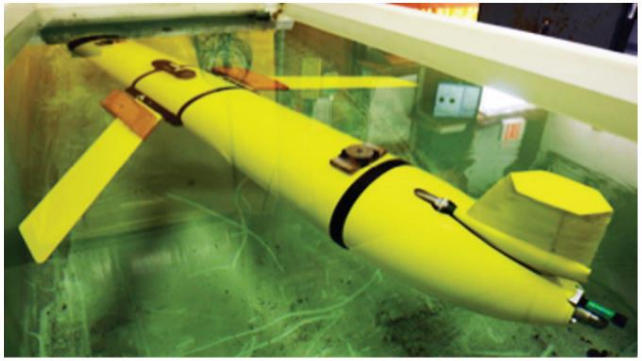


#1 Ocean Robot Test Tank

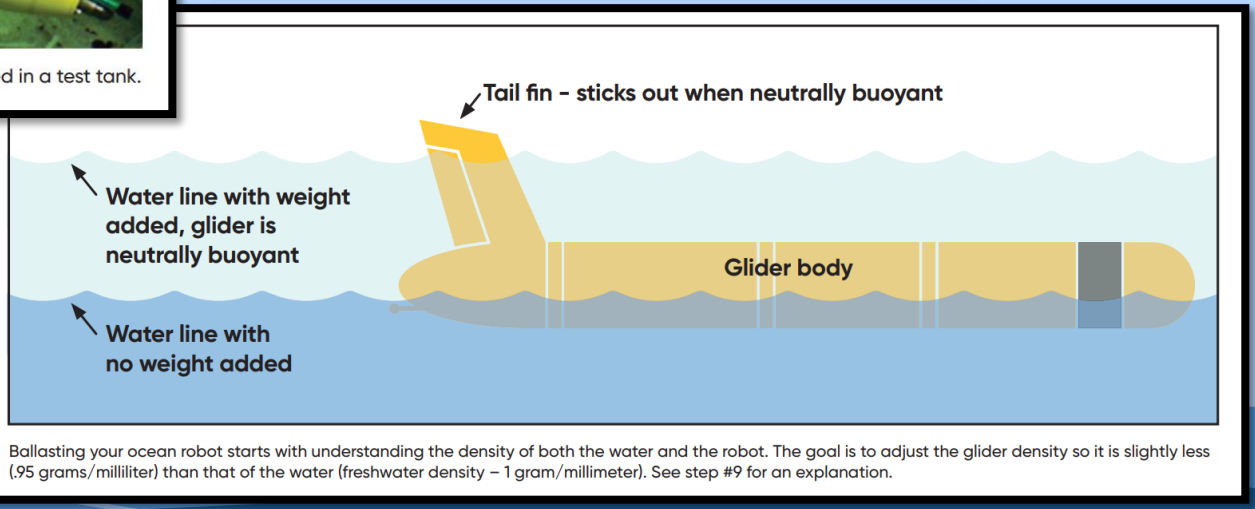


Mobilize the Mission: Click on the QR code to the left to get a message from your ocean robot pilots and fellow researchers, Dave and Nicole.

Ballast Your Glider



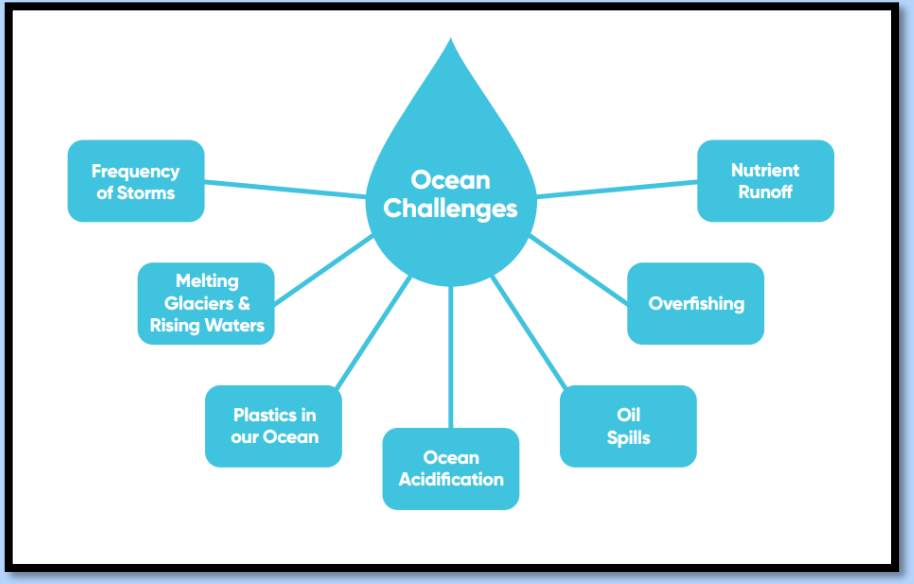
Picture of a glider being ballasted in a test tank.



Ballasting your ocean robot starts with understanding the density of both the water and the robot. The goal is to adjust the glider density so it is slightly less (.95 grams/milliliter) than that of the water (freshwater density – 1 gram/millimeter). See step #9 for an explanation.

#2 Ocean Expedition

#3 Ocean Communicator



4-H Strong

You have the power to make a change!

Every day, young people across the nation are standing up, lending their voice, and rolling up their sleeves to make changes and improve the health of our ocean planet. In 4-H we make the best better! Craft an impactful message to your family and friends:

HEAD

What is the problem? Explain the ocean challenge you want to address in your own words.

HEART

Why should we care about it?

HANDS

What is the solution? Can you explain an innovative idea you have to solve the problem?

HEALTH

How would this innovation meet the challenge/solve the problem to restore the ocean's health?

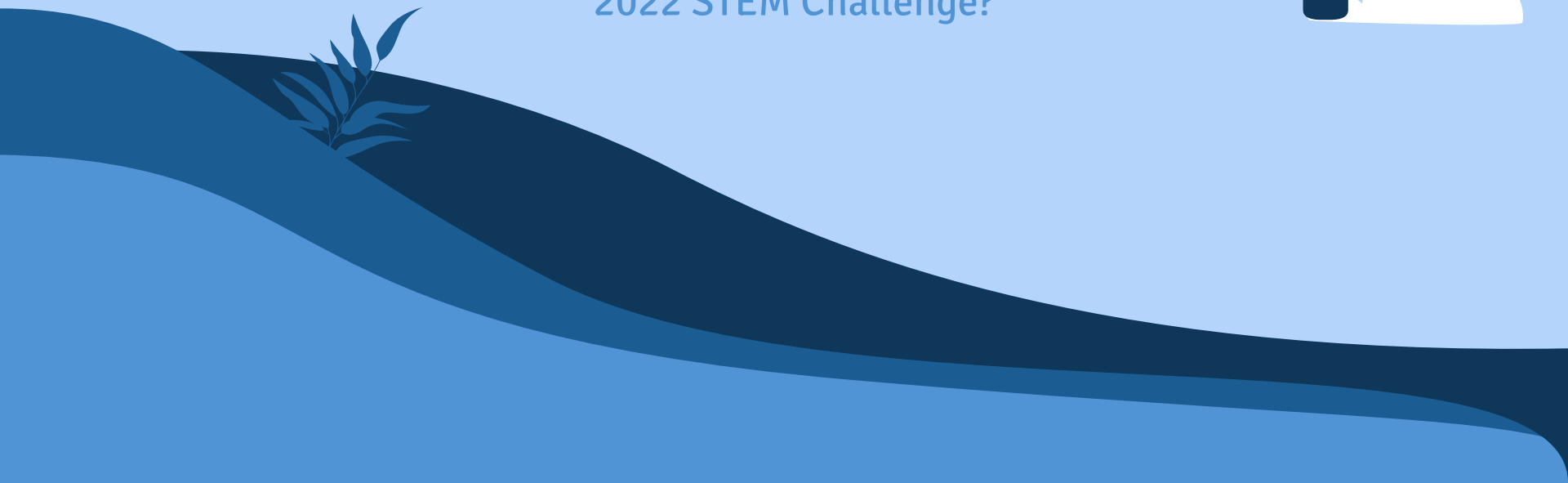
Who am I going to share this message with?

We have a duty to take care of Planet Earth for ourselves and for future generations. Let's be caretakers of the ocean and pass it on in good condition to those who follow us.

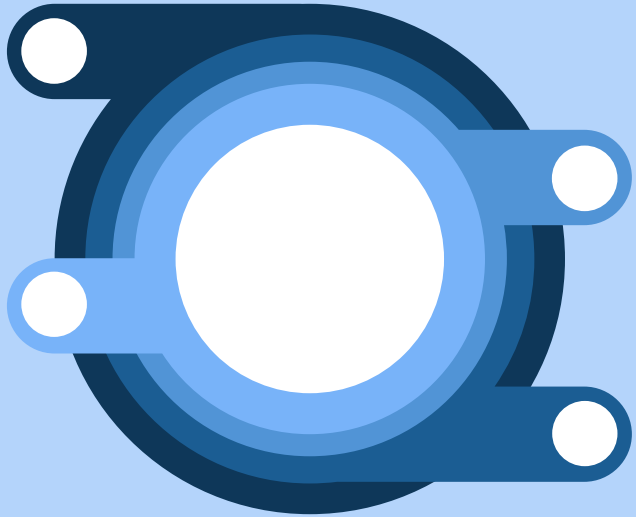
Discussion

4

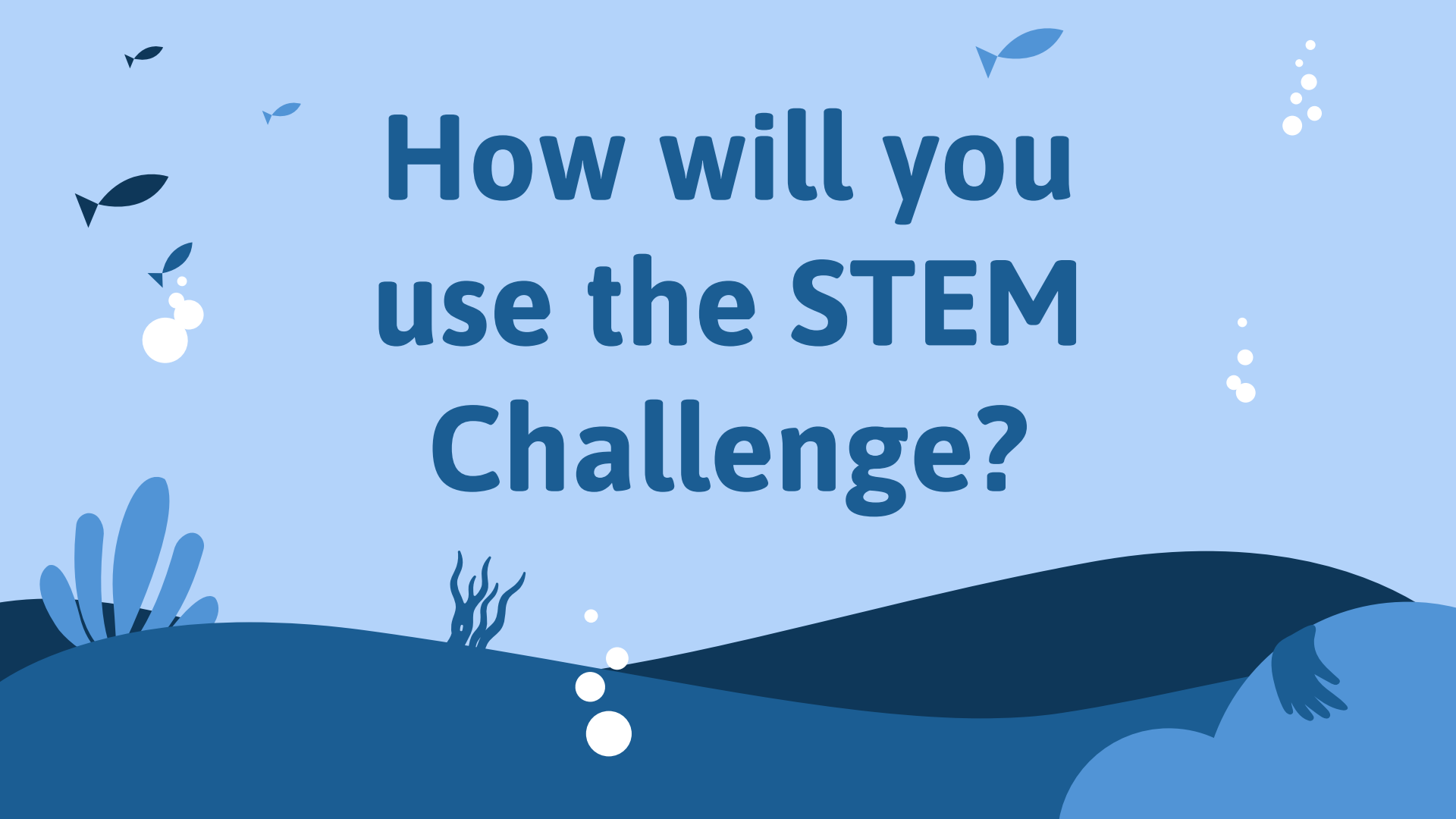
How can you use the
2022 STEM Challenge?



Implementation Considerations



How will you use the STEM Challenge?



Some Ideas ...

In-School Clubs	After-School Clubs	Special STEM Event
Community Festival	School Holiday	Day Camp

Dive Deep!

(and let Kasey know how she can help)

Questions?

Anything else?
I'm happy to help!

5

Kasey Bozeman
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3rd Announcement

Mercury is the closest planet to the Sun and the smallest in the Solar System—it's a bit larger than the Moon. It is named after the god Hermes, translated into Latin as Mercurius

Divide the Content

Mars

Despite being red, Mars is a cold place. It’s full of iron oxide dust

Venus

Venus has a beautiful name and is the second planet from the Sun

Saturn

It is the ringed one. It’s composed mostly of hydrogen and helium

Jupiter

Jupiter is a gas giant and the biggest planet in the Solar System

News

Mars

Despite being red, Mars is actually a very cold place. It’s full of iron oxide dust, which gives the planet its reddish cast

Venus

Venus has a beautiful name and is the second planet from the Sun. It’s terribly hot, even hotter than Mercury itself

13,102,019
Big numbers catch your audience’s attention

Customer Ratings

75%

Venus is the second planet

82%

Mars is actually a cold place

88%

Jupiter is the biggest planet

04

Welcome!

You can enter a subtitle here if you need it

Welcome!

Mercury is the closest planet to the Sun and the smallest one in the Solar System—it's only a bit larger than the Moon. It is named after the Greek god Hermes, translated into Latin as *Mercurius*, messenger of the gods, mediator between gods and mortals

Awesome Words

A Picture Is Worth
a Thousand Words

Future Events

April

Yeah, Saturn is the ringed one

September

Neptune is very far away from Earth

July

Despite being red, Mars is a cold place

November

Earth is the planet where we live on

Events

05

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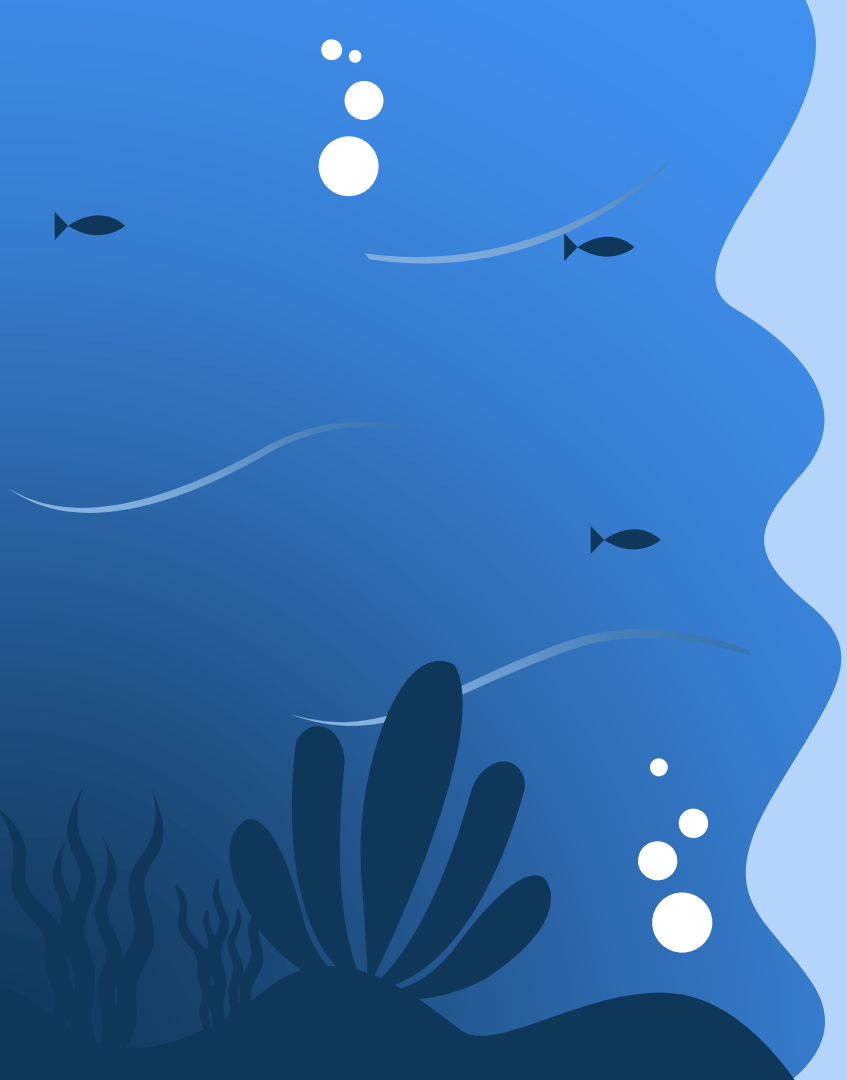

“This is a quote, words full of wisdom that someone important said and can make the reader get inspired.”

—Someone Famous

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Alternative Resources

Vectors

- Illustrated coronavirus waste in the ocean

Photos

- Used medical masks and gloves top view
- Top view disposable medical masks and hand with gloves

Resources

Vectors

- Coronavirus waste in the ocean wallpaper illustrated
- Sad background of coronavirus waste
- Coronavirus waste - background
- Coronavirus waste background
- Sad background of coronavirus waste in the ocean

Photos

- Person wearing protection gloves taking a disposable mask
- Hazardous waste to nature medical masks
- Top view disposable medical masks

Icon Pack

- Personal protective equipment PPE

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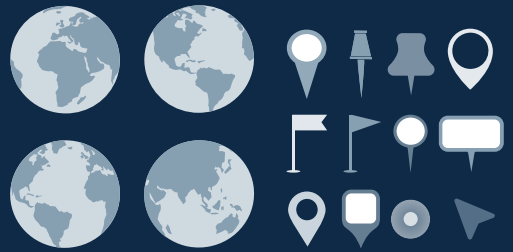

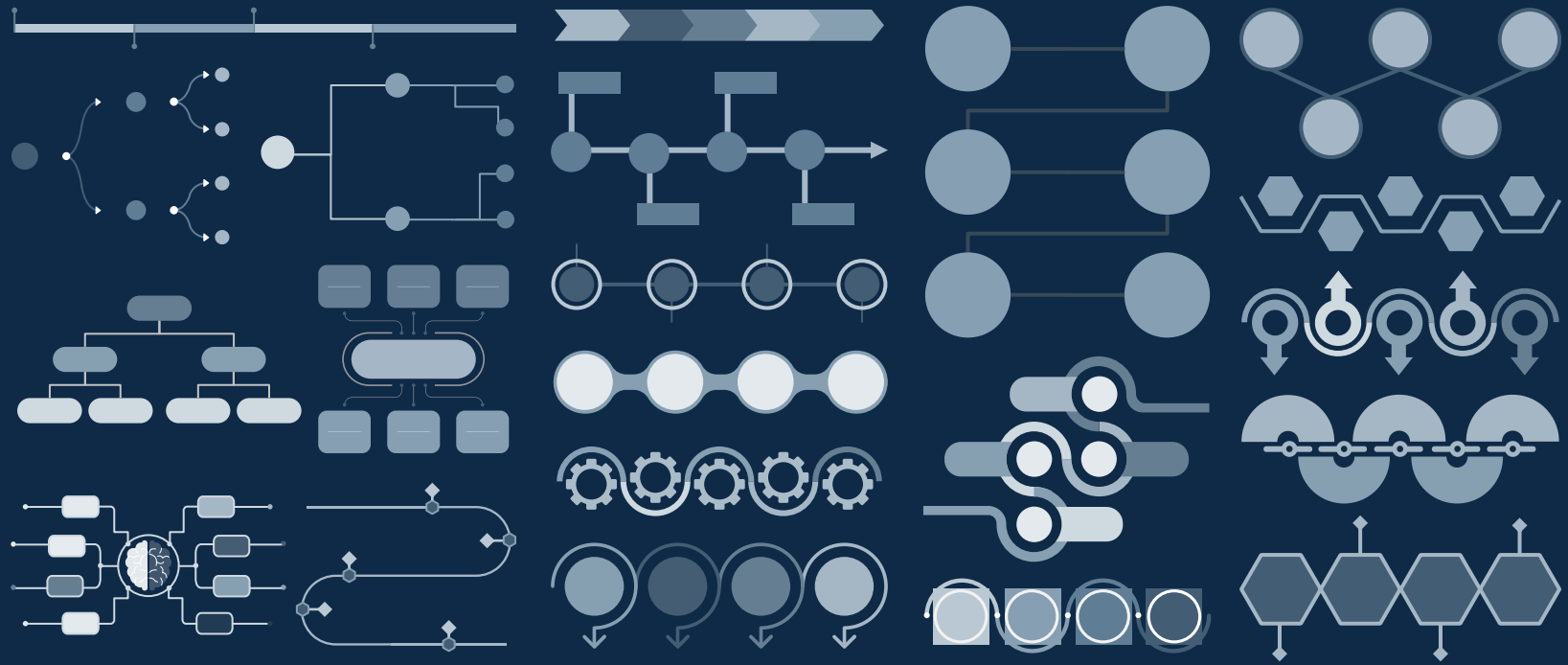

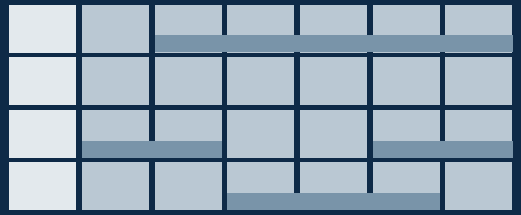

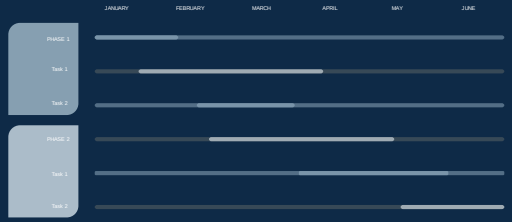
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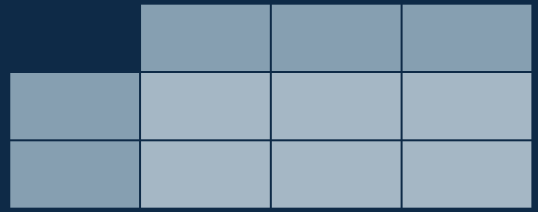

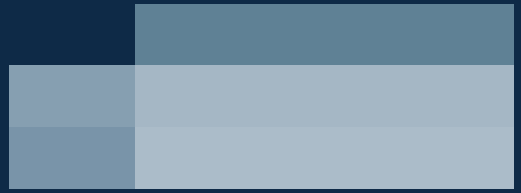

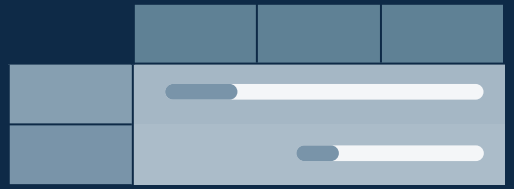

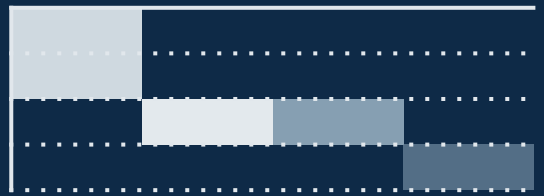

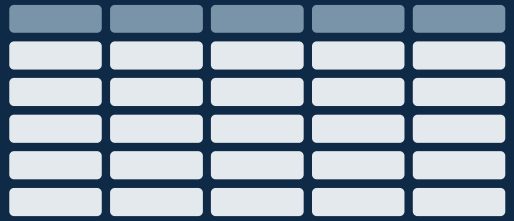

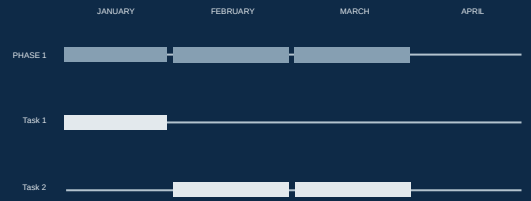
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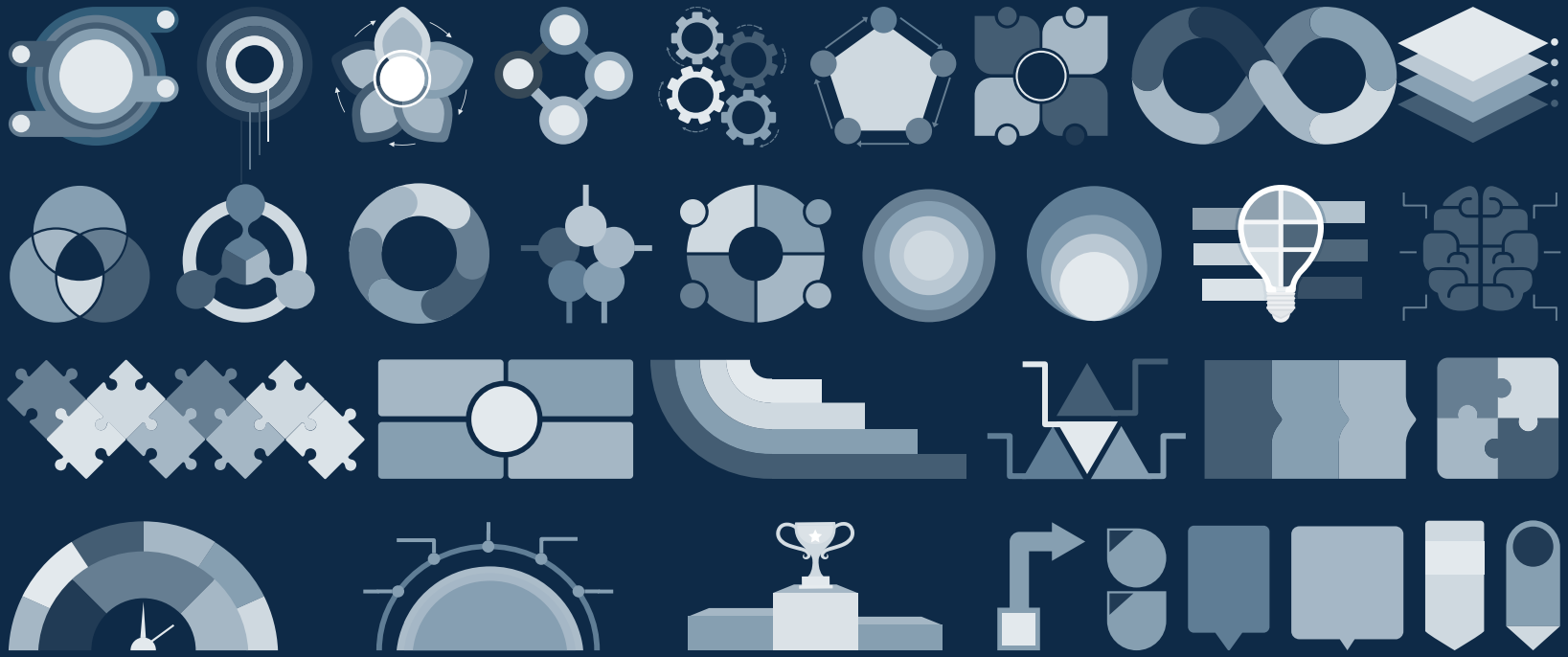

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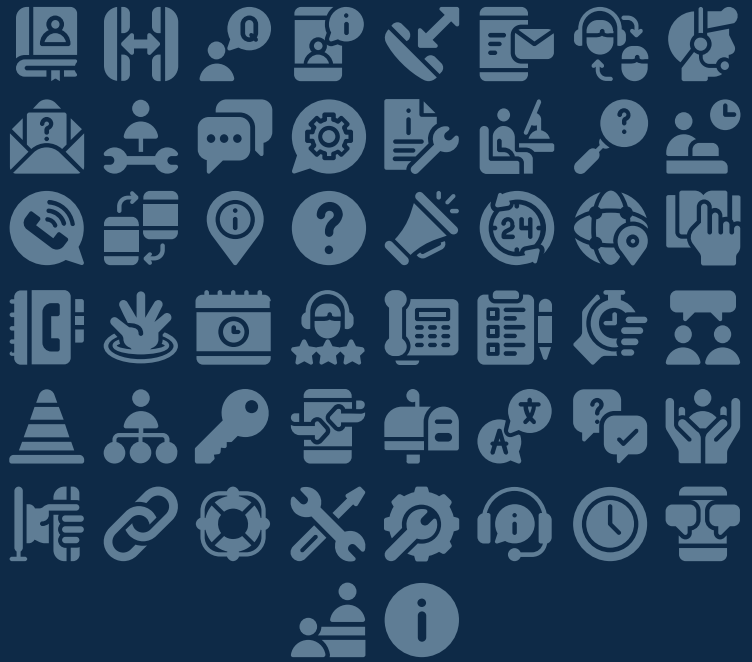

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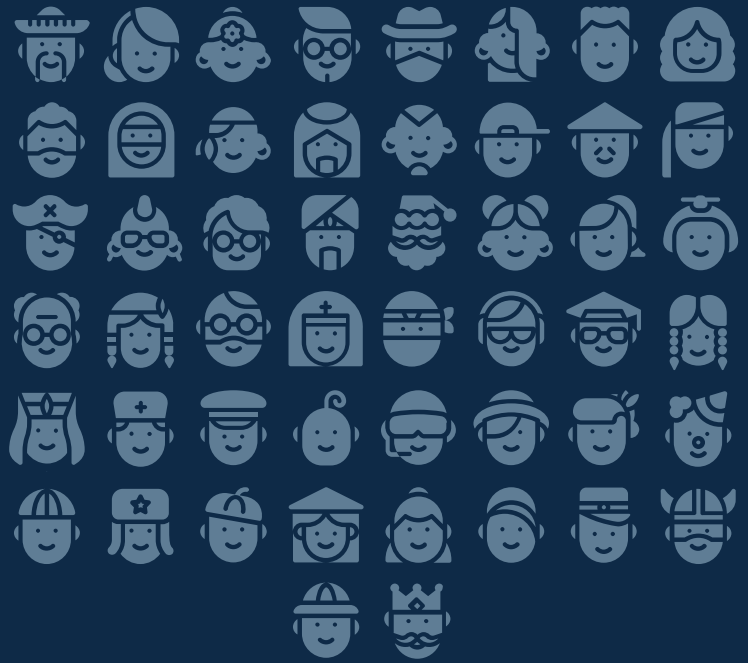

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