

# Coastal Countdown

## Eagle STEM Scrimmage

School: \_\_\_\_\_ Team: \_\_\_\_\_ Team #: \_\_\_\_\_

Student Names: \_\_\_\_\_

### Station 1 (3 points each)

a. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

c. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Station 3 (2 points each)

a. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

c. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Station 2 (5 points)

|           |  |
|-----------|--|
| Claim     |  |
| Evidence  |  |
| Reasoning |  |

# Coastal Countdown

## Eagle STEM Scrimmage

### Station 4 (2 points each)

- a. \_\_\_\_\_  
\_\_\_\_\_
- b. \_\_\_\_\_  
\_\_\_\_\_
- c. \_\_\_\_\_

### Station 6 (1 point each)

1. A B C D
2. A B C D
3. A B C D
4. A B C D

### Station 5 (6 points)

- 1.
- 2.
- 3.
- 4.

Short Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Station 7 (5 points)\*

1. A B C D

2. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Coastal Countdown - Station 1

*Write a hypothesis in the **if, then, because** format to respond to the following questions:*

How will rising sea levels affect the number of sunny day floods?

How will an increasing number of impermeable surfaces in a coastal town affect water quality?

What will happen to the sea level if greenhouse gas concentration increases?

# Coastal Countdown - Station 2

*Review the following data and construct a claim, evidence, and reasoning relating to the data trend, outliers, variation, or any other scientific aspect of the data you choose.*

| Date    | Monthly Sea Level Anomaly<br>(Meters) |
|---------|---------------------------------------|
| 2013-12 | 0.018                                 |
| 2014-12 | 0.094                                 |
| 2015-12 | 0.271                                 |
| 2016-12 | 0.091                                 |
| 2017-12 | 0.065                                 |
| 2018-12 | 0.053                                 |
| 2019-12 | 0.109                                 |
| 2020-12 | 0.123                                 |
| 2021-12 | 0.123                                 |
| 2022-12 | 0.132                                 |
| 2023-12 | 0.172                                 |

Source: NASA

# Coastal Countdown - Station 3

*Answer the following with a few sentences each.*

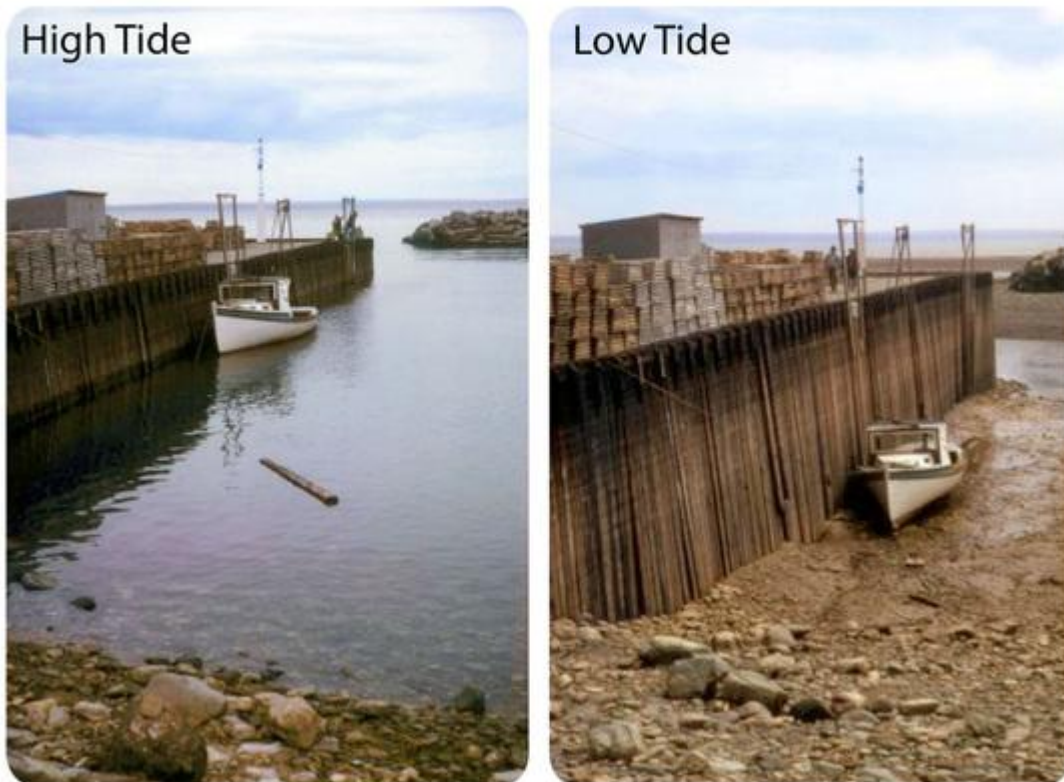
Describe one cause of global sea level rise.

Describe one effect that global sea level rise has on coastal towns.

Describe one way that governments can reduce the impacts of sea level rise through mitigation or adaptation.

# Coastal Countdown - Station 4

*Refer to the image below to answer the questions*



*The two images depict a town during high tide and low tide.*

1. Which tide is more likely to cause sunny day flooding?
2. Why does flooding occur even when there is no rain?
3. Name one human-made structure that could reduce flooding in this town.

# Coastal Countdown - Station 5

*Match each term with its effect by writing the letter next to the corresponding number on your answer sheet.*

- |                      |                                       |
|----------------------|---------------------------------------|
| 1. Turbidity         | A. Fish may die if levels are too low |
| 2. Dissolved Oxygen  | B. Can cause algae blooms             |
| 3. Nutrients         | C. Less sunlight reaches plants       |
| 4. Stormwater Runoff | D. Carries pollutants into water      |

*Respond to the following short answer question*

How can sunny day flooding increase turbidity?

# Coastal Countdown - Station 6

*Select the answer which best applies to the question.*

1. What is sunny day flooding?
  - a. Flooding caused by hurricanes
  - b. Flooding caused by “sun showers”
  - c. Flooding caused by high tides without rain
  - d. Flooding caused by broken dams
  
2. What causes sea level rise?
  - a. Earth’s rotation slowing
  - b. Melting ice and thermal expansion
  - c. Ocean currents stopping
  - d. Increased rainfall only
  
3. What is a king tide?
  - a. A storm surge from hurricanes
  - b. The highest predicted tide of the year
  - c. A tsunami
  - d. A tide caused by earthquakes
  
4. Why do king tides increase flooding risk?
  - a. They lower land elevation
  - b. They increase wind speed
  - c. They raise water levels temporarily
  - d. They stop storm drains from working

# Coastal Countdown - Station 7

*Respond to the following situation*

A small, coastal town has recently noticed that fish and other animals in the water around them are dying off.

1. What water quality indicator is most likely causing this problem
  - a. Turbidity
  - b. Dissolved Oxygen
  - c. Nutrients
  - d. Sea level
  
2. What is one environmental event that may have caused this sudden change?
  
3. What is one way that the town could prevent this from happening in the future?

# Coastal Countdown - Scoring Guide

## Station 1

- 1 point for correct format
- 1 point for correct “if, then”
- 1 point for correct reasoning

## Station 2

|           |  |
|-----------|--|
| Claim     | <ul style="list-style-type: none"><li>- Must claim something specific over entire data (1 point)</li></ul>   |
| Evidence  | <ul style="list-style-type: none"><li>- Acceptable evidence (2 points)</li><li>- Some unclear evidence (1 point)</li></ul>                               |
| Reasoning | <ul style="list-style-type: none"><li>- Strongly connects claim and evidence (2 points)</li><li>- Weakly connects claim and evidence (1 point)</li></ul> |

## Station 3 (2 points each)

- All acceptable answers can be scored

## Station 4 (2 points each)

- All acceptable answers can be scored

## Station 5 (6 points)

1. C
2. A
3. B
4. D

Short Answer: Any acceptable answer can be scored  
(Floodwater stirs up sediment, Runoff carries dirt into water)

## Station 6 (1 point each)

1. C
2. B
3. B
4. C

## Station 7

1. B
2. Multiple acceptable answers
3. Multiple acceptable answers