**Pollution: Problem in the Puget Sound Project**

**Model of the Problem**

Awareness Model- Create a 3D model of the Pollution Problem in the Puget Sound

This model must include the following:

* The entire water cycle of the Puget Sound
* At least 2 ways that pollution enters the cycle in the Puget Sound
* The effect these pollutants have on **at least 4 trophic levels** of the Food Web of the Sound
* At least two solutions (one small, one large) that a private citizen could do remove pollutants from the sound.

This will be a 3D model. It must:

* Be large enough to see, but able to be moved around
* Be in 3 dimensions (think a diorama, not a drawing)
* Include colors
* Include labels

You can use any of the materials handed out in class or any materials you get from home, as long as they are appropriate and safe for school, to build your models.

Notes: Use the graphic organizer below to organize your notes and research

How do pollutants effect the food web? Describe **on 4 trophic levels:**

What is one solution?

What is another?

Draw the Water Cycle **of the Puget Sound**:

How do pollutants get into the water cycle?

Before you begin creating your model, create a diagram and get it approved:

**Awareness Model Diagram**

Solutions to be modeled: 1)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Model Group Grade: The entire group will receive a grade for the model, based on this rubric:

|  |  |  |  |
| --- | --- | --- | --- |
| Model Content | 0pts | 2pts | 4pts |
| Water Cycle | Water cycle includes a depiction of **less than 3 of the following**: precipitation, surface runoff, condensation, accumulation, evaporation, and transportation | Water cycle includes a depiction of **3 or more of the following**: precipitation, surface runoff, condensation, accumulation, evaporation, and transportation | Water cycle includes a depiction of **all of the following**: precipitation, surface runoff, condensation, accumulation, evaporation, and transportation |
| Water cycle is **general**. | Water cycle is based on the **Puget Sound** specifically |  |
| Pollution | **No sources of pollution** in the Puget sound are identified and shown | **1 source of pollution** in the Puget sound is identified and shown | **2 sources of pollution** in the Puget sound are identified and shown |
| Food Web | Organisms from **2 trophic levels or less** are depicted | Organisms from **3 trophic levels** are depicted | Organisms from **4 trophic levels** are depicted |
| Food web is **general**. | Food web is based on the **Puget Sound** specifically |  |
| Effect of pollutants on organisms **is not shown** | Effect of pollutants on organisms **is shown** |  |
| Solution | **A possible solution is not shown** | **One possible solution is shown** | **two possible solutions are shown** |
| Model Construction | 0pts | 1pt | |
| Size | Too big to move, too small to see | Large enough to see, but can be moved | |
| Dimensions | 2D drawing or flat, no 3D | 3 Dimensions: contains depth | |
| Colors | Black and white | Contains Color | |
| Labels | No labels | Organisms, vocabulary words, pollutants and solutions are clearly labeled | |

**Awareness Publication**

Publication to Present Solutions: You will choose to make a poster, brochure, or letter that addresses your chosen issue facing the Puget Sound.

* **Address** your publication to a **specific audience**. Ex: Students, city council, business owners, fishermen, restaurants, homeowners, the general public, ect.
* Include a **description or diagram** of how water from the atmosphere gets to Earth, picks up pollutants, and enters the Puget Sound
* Include a **description or a diagram** of the impact pollutants have on both the environment and humans
* **Describe** a **solution to the problem,** and **explain** why it is possible
* Make a direct “**call to action**” to your audience, asking them to make a change
* Use and cite at least 3 sources.

Notes: Use the graphic organizer below to organize your notes and research

What audience are you talking to?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What Solution are you proposing?

**Why does it fit your audience?**

What type of publication will you make?

**Why is it the best way to talk to your audience?**

Describe/Diagram how pollutants enter the sound.

Describe/diagram the impact on humans and environment

What is you “call to action?”

**Why can your audience do it?**

Before you begin creating your publication, create a diagram and get it approved:

**Publication Diagram or plan** Call to action of publication: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Individual Grade: Each individual student will receive a grade on their publication using this rubric:

|  |  |  |  |
| --- | --- | --- | --- |
| Publication Content | 0pts | 2pts | 4pts |
| Audience | It is not clear what the audience of the publication is | **Most** of the publication is directed to a specific audience | **Entire** publication is directed to **one specific** **audience** |
| Pollutants | **Does not include a description or diagram** of how water from the atmosphere gets to Earth, picks up pollutants, and enters the Puget Sound | Includes a **partial description or diagram** of how water from the atmosphere gets to Earth, picks up pollutants, and enters the Puget Sound | Includes a **complete description or diagram** of how water from the atmosphere gets to Earth, picks up pollutants, and enters the Puget Sound |
| Effect | **Does not** **include a description/diagram** of the impact pollutants have on the environment & humans | Includes **a description/diagram** of the impact pollutants have on the environment **OR** humans | Includes **a description/diagram** of the impact pollutants have on the environment **AND** humans |
| Solution | **Does not describe a solution to the problem** | **Describes a solution** to the problem, **does not** explain **why it is possible** | **describe a solution to the problem, and explain why it is possible** |
| Call to Action | No call to action is made | A call to action is made but is unfeasible for the audience of the publication | A clear **“Call to Action” is made**. It is **feasible** for the audience to achieve. |
| Publication Construction | 0pts | **1pt** | **2pts** |
| Professionalism | Publication is sloppy or illegible | Publication is neat and professional |  |
| Research | No sources listed | Sources are not scientific/reputable | Sources are cited, and reputable |

**Class Letter:**

**Teacher stamp**

Each student will take home a letter to their families. The goal of this letter is to:

1. **Inform** family and community members of the importance of improving storm water quality in the Puget Sound
2. **Create** a household plan for improving storm water quality in the Puget Sound
3. **Commit** to a household plan for improving storm water quality in the Puget Sound

Predict: What do you think **your household** could do?

Solutions

Commitments **your house** could make

Participation Grade: Each individual student will receive a grade **for returning their signed letter**:

* Get a stamp from your teacher that you have turned the letter in!

**Presentation**- You and your group members will present your model, publications and class letter to audience of citizens of the Puget Sound. Keep in mind that the more interesting the presentation the more likely people are to listen to you.

Your presentations should be 3-5 minutes long and include the following information.

* What the problem is
* What are the effects of the problem
* What can be done about it
* Why should anyone care

Parents, Administration, other teachers, and the people who funded out field trip may be at the presentation.