

## STUDENT WORKBOOK

# Stewardship & Action Journal



## WAVE OF PLASTIC

Meaningful Watershed Educational Experience

## LESSON FIVE WE CAN MAKE A DIFFERENCE

- How do we describe, quantify, and communicate about issues related to plastic waste?
- What is environmental stewardship?
- How are students and other citizens engaging in informed action to address issues of plastic pollution?
- What can we do?

Student Name:

\_\_\_\_\_

### Unit Driving Question:

**How do human choices regarding the consumption and disposal of plastics impact ecosystems and our communities and what actions can we take to minimize those impacts?**

### **Part 1- Introduction: Building Understanding**

#### **Objectives:**

- We will ask questions and make observations about how our choices and activities regarding the consumption and disposal of materials contribute to issues of plastic pollution.
- We will explore ways that we can take informed action to address issues related to plastic pollution.
- We will integrate and interpret information presented in different media or formats to develop a coherent understanding of a topic or issue.

**Use the space below to take notes and list ideas as you:**

- Review and reflect on issues related to plastic pollution and how they affect the Chesapeake.**
- Review and reflect on the actions taken in previous Wave of Plastic Lessons.**
- Explore stewardship definitions and the different types of action projects.**

Part 2- Investigation: Integrating Information & Ideas  
Part 3 – Application: Applying What We Learned Through Informed Action

**Objectives:**

- We will use our *Student Action Journals* to plan, implement, and evaluate solutions for addressing issues related to plastic waste in our communities.

## Taking Action to Address Issues Related to Plastic Pollution

**Using this journal as a tool, we will:**

- ❑ **Ask questions.** We will ask questions about the problems related to plastic pollution that are affecting our community and identify a problem that we can take action to help resolve.
- ❑ **Collect information & draw conclusions.** We will collect information and draw conclusions to help us better understand the issue.
- ❑ **Develop a claim and identify solutions.** We will develop a claim based on the conclusions we have drawn. Our claim should reflect an opportunity for seeking solutions through informed action to address the problem in a way that seeks a solution.
- ❑ **Design a plan and take informed action.** We will design a plan for implementing our solution through informed action in our classroom, school, and/or communities. Our plan will include criteria for determining whether our actions successfully addressed the problem. We will implement our plan.
- ❑ **Evaluate and reflect.** We will reflect on the action and determine the extent to which it successfully addressed the problem we identified. We will identify opportunities for sustaining or extending the action.

**Ask questions**

We will ask questions about the problems related to plastic pollution that are affecting our community and determine a problem for which we can take action to help resolve it.

**How do human choices regarding the consumption and disposal of plastics impact ecosystems and our communities and what actions can we take to minimize those impacts?**

1. What issues related to plastic waste have you observed in your community? Brainstorm ideas with a partner or as a class. Write the list below.
  - *Example: Students at our school throw plastic trash on the ground outside*
  - *Example: Our school throws away a lot of plastic spoons and forks at lunchtime*
  - *Example: Students at our school do not know what items are recyclable*

- ◆ \_\_\_\_\_
- ◆ \_\_\_\_\_
- ◆ \_\_\_\_\_
- ◆ \_\_\_\_\_
- ◆ \_\_\_\_\_

2. Select one of these issues that YOU WILL address through informed action.  
Circle your choice above.

Why did you choose that issue to address through informed action?

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Now that you have chosen an issue for your **Student Action Plan**, use the following questions to begin to better understand and solve the problem.

1. What information do you already know about your issue?

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

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

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

2. In the chart below, identify who might be affected by the issue and by a project to help resolve the issue.

Who is affected by this issue?	Who will be affected by a project to help resolve the issue?

3. In the chart below, describe your perspectives on the issue. Then, describe perspectives that might differ or oppose your own. Finally, brainstorm some potential points of agreement.

Your Perspective on the Issue	Opposing Perspectives on the Issue
Potential Points of Agreement	

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**Collect information & draw conclusions**

We will collect information and draw conclusions to help us better understand the issue.

1. In the chart below, list the supporting questions you will need to answer and the information you will need gather to better understand your issue.

*(For example: How many plastic straws were thrown away today during lunch? How many pieces of plastic could be recycled from our school lunches? How many people in our school know what can be recycled in our county?)*

Supporting Questions
1.
2.
3.
4.
5.
6.

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1. What are some resources you could use to gather information to answer the supporting questions? Identify your resources in the chart below. Add any notes that you find helpful.

<b>Websites:</b>	<b>Notes:</b>
<b>People/Organizations:</b>	<b>Notes:</b>
<b>Books/Articles:</b>	<b>Notes:</b>
<b>Other:</b>	<b>Notes:</b>
<b>Other:</b>	<b>Notes:</b>

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2. Refer to your supporting questions and the resources you identified. In the space below, use your resources to answer your supporting questions. Record information that helps answer your supporting questions.

Research/Notes
1.
2.
3.
4.
5.
6.

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3. What does your research suggest about patterns or trends in your community?

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4. How do these patterns or trends help you decide what action you should take?

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**Develop a Claim and Identify Solutions**

We will develop a claim based on the conclusions we have drawn. Our claim should reflect an opportunity to take informed action to address the problem in a way that seeks a solution.

1. Using the chart below, develop a claim that responds to, or describes the problem you've been exploring. The claim should inspire or prompt informed action.

Use what you've learned in your investigations as evidence to support your claim.

Finally, provide the reasoning to justify and explain your claim and evidence.

**Claim:** A statement or conclusion that responds to the question/problem. *What is the problem?*

**Evidence:** The data that supports the claim. *The data should be appropriate and sufficient to support the claim.*

**Reasoning:** The justification that links the claim and evidence. *Why is it a problem?*

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2. Use the charts below. Brainstorm at least two solutions to the problem that you could implement. Explain how and why each solution would successfully address the problem. Describe the advantages and challenges of each solution. Finally, choose one solution to implement.

<i><b>Solution A:</b> One possible solution that responds to the problem reflected in the claim.</i>
<b>Evidence &amp; Reasoning for Solution A:</b> <i>How would Solution A respond to the problem?</i>
<b>Potential Benefits of Solution A:</b>
<b>Potential Challenges to Solution A:</b>

<i><b>Solution B:</b> One possible solution that responds to the problem reflected in the claim.</i>
<b>Evidence &amp; Reasoning for Solution B:</b> <i>How would Solution B respond to the problem?</i>
<b>Potential Benefits of Solution B:</b>
<b>Potential Challenges to Solution B:</b>

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3. Use the charts below to begin planning how you will implement your action project.

<b>Our Solution:</b> <i>Restate the solution you have chosen to implement through informed action</i>	
<b>Evidence &amp; Reasoning for Our Solution:</b> <i>Describe why your solution is a good option for addressing the problem.</i>	
<b>Criteria for Success:</b> <i>How will you know whether your solution successfully addresses the problem?</i> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<b>Materials Needed:</b> What materials will you need to complete your plan? How will you obtain those materials?	
<b>Material</b>	<b>Source</b>
<input type="checkbox"/>	

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4. **Action Plan:** In the space below, list the steps that you will take to implement your plan. As you carry out your plan, be sure to take notes on your progress, challenges you faced, and successes you had.

<b>Step</b>	<b>Notes on Progress</b>	<b>Notes on Challenges</b> <i>What challenges did you face and how did you resolve them?</i>	<b>Successes</b> <i>What was successful? Why do you think it was successful?</i>
<input type="checkbox"/>			

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**Evaluate and reflect**

We will reflect on the action we took and determine the extent to which it successfully addressed the problem.  
 We will identify opportunities for sustaining or extending the action.

1. After you have completed your action plan, use the chart below to restate the solution that you carried out through informed action and the criteria for determining whether your action was successful.

<b>Our Solution:</b> <i>Restate the solution you have chosen to implement through informed action</i>
<b>Criteria for Success:</b> <i>How will you know whether your solution successfully addresses the problem?</i>
<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>

2. In the chart below, describe whether and how your plan met each criterion you identified as being an indicator of success. What recommendations do you have for ensuring better success for each criterion?

Criteria	How successful was the plan according to these criteria?	Recommendations <i>What challenges did you face and how did you resolve them?</i>
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

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3. Reflect on the experience of planning and implementing your action project. Respond to the following questions:

- What was something you and/or your group found particularly rewarding about the experience?

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- What was something you and/or your group found particularly challenging about the experience?

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- How would you describe the impact of your project on your community (in the short-term and the long-term)?

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- How would you describe the impact of your project on ecosystems (in the short-term and the long-term)?

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- Describe what steps are needed to ensure that your project is sustainable (in other words, that it will continue to be effective in the future).

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*List of Artifacts*

**In the space below, list any relevant artifacts that support your project.  
(For example, data charts, graphs, photographs, prototypes, sketches etc.)**

## Part 4- Assessment: Demonstrating Our Understanding

### Objectives:

- Part 1: Students complete a *Student Action Project Summary* to demonstrate their understandings developed through Lesson 5.
- Part 2: Students will use the *Claim, Evidence, Reasoning model* to demonstrate understandings developed throughout the entire *Wave of Plastic* unit.

## Part 1: Student Action Project Summary

### DIRECTIONS

Use the chart below to summarize and reflect on your action plan.

#### *Driving Question:*

How do human choices regarding the consumption and disposal of plastics impact ecosystems and society (in our communities) and what actions can we take to minimize those impacts?

#### **The problem that we addressed:**

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#### **Our solution:**

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**The scientific principles that informed our solution:**

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**The impact of our solution:**

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**Advice for others working to address this problem:**

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## Part 2: Claim, Evidence, Reasoning Response

### DIRECTIONS

Use the Claim, Evidence, Reasoning model to respond to the question below.

Claim/Evidence/Reasoning Writing Rubric				
	0	1	2	3
<b>Claim</b> – statement or conclusion that answers the original question/problem.	Does not make a claim.	Makes an inaccurate claim.	Makes an accurate but incomplete claim.	Makes an accurate and complete claim.
<b>Evidence</b> – scientific data that supports the claim. The data needs to be appropriate and sufficient to support the claim.	Does not provide evidence.	Only provides inappropriate evidence (Evidence that does not support the claim.).	Provides appropriate, but insufficient evidence to support claim. May include some inappropriate evidence.	Provides appropriate and sufficient evidence to support claim.
<b>Reasoning</b> – justification that links the claim and evidence and includes appropriate and sufficient scientific principles to defend the claim and evidence.	Does not provide reasoning	Only provides reasoning that does not link evidence to claim.	Repeats evidence and links it to some scientific principles, but not completely.	Provides accurate and complete reasoning that links evidence to claim. Includes appropriate and sufficient scientific principles.

Use what you’ve learned about issues related to plastic waste throughout all *Wave of Plastic* lessons.

- ★ Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

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