



# STUDENT WORKSHEETS TOOLBOX



## STUDENT WORKSHEETS TOOLBOX

### Asking Questions and Planning Investigations Worksheet

This worksheet will help students connect the dots between the driving question, the supporting questions (*what do we want to know?*), and the investigations (*how can we investigate it?*).

Engaging students in developing questions is one way of incorporating student voice from the outset of the MWEE. This worksheet can be used to explore opportunities both in the classroom and in the field. If your field experience location is already set or you have limitations on where it could occur, it may be helpful to describe these locations (habitats, resources, and tools available, etc.) to your students to help them think about questions they could explore while outside the classroom.

### Claim, Evidence, Reasoning Worksheet

This worksheet helps students make a claim about the issue, problem, or phenomenon they explored during Issue Investigation. This claim will be used to inform Environmental Action Projects.

Students should start the worksheet by restating the question they investigated — this could be the MWEE driving question or a supporting question.

The claim should be a one-sentence response to the question that shares what they can conclude, given their evidence, and describes the relationship between dependent and independent variables. The evidence is the scientific data gathered by students that supports the claim. Students should include enough evidence to support their claim and only include the relevant evidence, which could be qualitative, quantitative, or both. The reasoning connects the claim and the evidence. The reasoning should show how and why the included data counts as evidence and why it is needed to support the claim.

### Moving from Claims to Informed Action Worksheet

This worksheet helps students brainstorm different Environmental Action Project options for addressing the driving question explored in the MWEE. Remember that environmental action comes in many shapes and forms, including restoration or protection, everyday choices, community engagement, and civic engagement.

To learn how to move from action project brainstorming to selecting a project, check out the Explainer for Choosing an Action Project worksheet on page 63.

### Choosing an Action Project Worksheet

This worksheet is one method you can use to guide students in selecting a single action project. It should be completed by a group or classroom. Start by adding five student-created action project ideas to the grid. These ideas should be directly related to the driving question and supported by evidence.

Next, as a group, decide on criteria for choosing an action project. This is the time where you, as the educator, should talk about the absolute criteria. For example: the action project must be completed in three class periods, cost less than \$50, and involve every student. Make sure to leave at least one or more criteria for students to create. Criteria may be specific or general.

After you and your students select the criteria, write them on the grid and then rate each strategy against each criterion. Tally the results using the grid. After each strategy is ranked against the criteria, one strategy may stand out as the clear winner. If one does not emerge, students may need to establish additional criteria to apply to each possible action idea. This worksheet was adapted from a resource from EarthForce. More information about their tools and process can be found at:

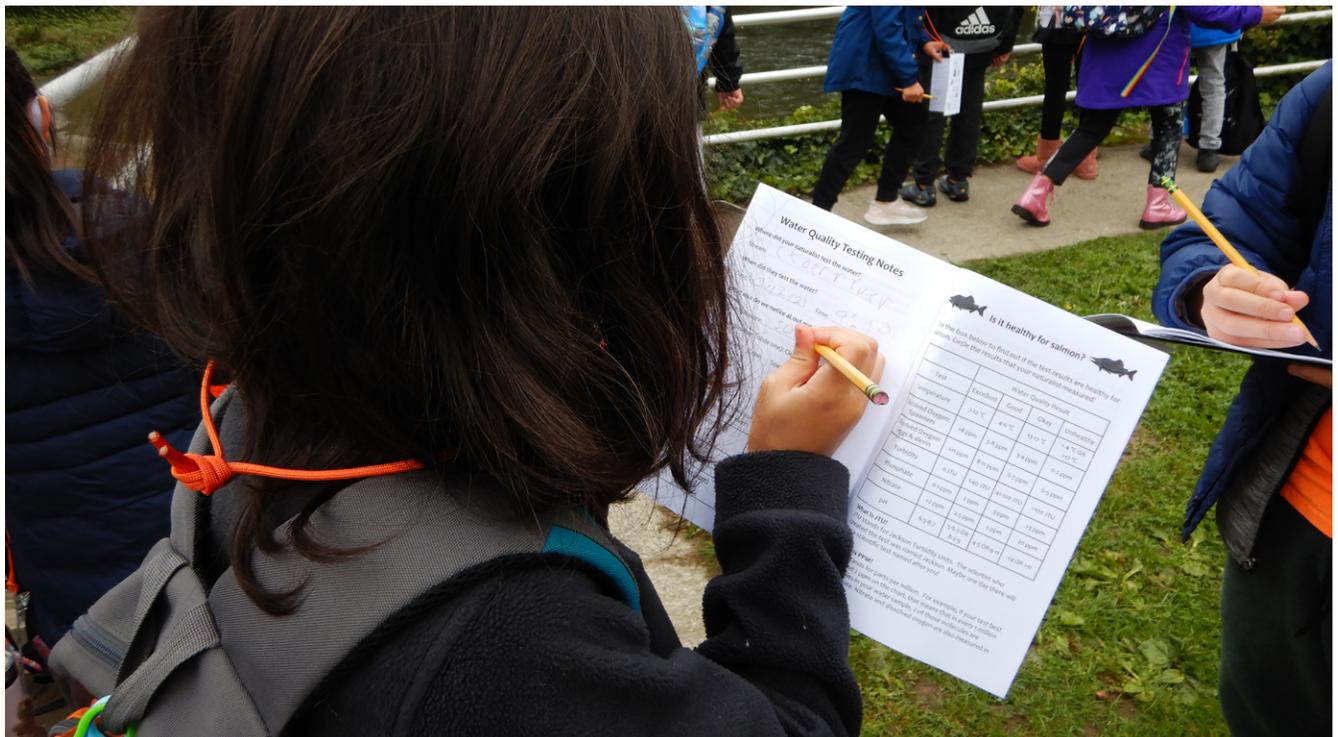
[earthforceresources.org](http://earthforceresources.org).

For a more detailed explanation on how you can use this worksheet, check out the Explainer for Choosing an Action Project worksheet.

### Environmental Action Planning Worksheets

This set of worksheets can be used to plan the Environmental Action Project. The worksheets cover basic steps in planning and implementing an action project and can be used by students independently, in small groups, or as a class. There are five total worksheets in this planning set.

Use the worksheets that make sense for your students' action project and/or assign different pages to small groups or individuals to complete. These worksheets were adapted from a resource from ShoreRivers in Easton, Maryland.



A fourth grader tests Cedar River's water quality in King County, Washington, to determine if it is healthy for salmon and captures notes in a field journal. (Kelly Steffen)



# ASKING QUESTIONS AND PLANNING INVESTIGATIONS

Name: \_\_\_\_\_ Class: \_\_\_\_\_

Driving question:

.....

What do we want to know?	How can we investigate it?	Where can we investigate it?



## CLAIM, EVIDENCE, REASONING

Name: \_\_\_\_\_ Class: \_\_\_\_\_

What question did you investigate?

.....

**Claim:** Make a statement that addresses the question above. Your claim must be supported by the evidence you list below.

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**Evidence:** What data (background research, observations, collected data) supports your claim? Only list the data that directly relates to your claim.

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**Reasoning:** How does your evidence allow you to make this claim? How are they connected?

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## MOVING FROM CLAIMS TO INFORMED ACTION

Name: \_\_\_\_\_ Class: \_\_\_\_\_

Claim

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Question	Solution #1	Solution #2	Solution #3
What action could be taken to address the environmental issue?			
How would this action help to address the issue?			
What resources would you need to make it happen?			

## EXPLAINER FOR CHOOSING AN ACTION PROJECT WORKSHEET

You can support students in brainstorming action ideas and then choosing a single project to carry out as a class or small group in many different ways. This lesson explainer describes one way of how you might bridge the use of the Moving from Claims to Informed Action worksheet with the Choosing an Action Project worksheet. Adapt and create alternatives that meet your class needs.

1. Using the Moving from Claims to Informed Action worksheet provides space for students to brainstorm possible solutions to their environmental issue. The prompts on the left-most column can be helpful in fleshing out concepts. This can be done individually or in pairs, and ideally students come up with at least three distinct ideas. Encourage innovative and divergent thinking.
2. Organize students into five small groups to discuss and debate their ideas. The focus is now on convergent thinking. Task them with developing a single idea they would want to carry out in order to take action on the issue. By the end, they should have a succinct one-sentence description of their action project idea.
3. Using the Choosing an Action Project worksheet, each of the five groups will briefly pitch their idea to the whole class. Each idea is written into one of the boxes of the grid.
4. Introduce the concept of criteria, or “standards on which decisions are based.” In order to make a decision about which project to move forward with, the class will use criteria to narrow down the options and arrive at a final selection. It can help for there to be teacher-created criteria as well as student-created criteria. Examples of teacher-created criteria may include restrictions around timing (e.g., the project must be completed in two class periods) or funding (e.g., the project must cost less than \$50). Encourage students to think about what they value most when they create criteria. Examples of student-created criteria may be around impact (e.g., will this make substantial change in our community) or interest (e.g., will this project be fun to work on). Add the criteria into the boxes in the left-most column of the grid.
5. Finally, engage the class in voting on the action project ideas listed at the top against the criteria that were written along the side. This can be done as a large class discussion or students can vote individually by placing dot stickers or check marks in the appropriate boxes. Tally the results. One strategy may stand out as the clear winner. If one does not emerge naturally, students may need to establish additional criteria or use a different kind of voting technique to come to consensus. Or perhaps, students can brainstorm a way to merge the ideas and execute aspects of both.



## CHOOSING AN ACTION PROJECT

Group/Class: \_\_\_\_\_

ACTION PROJECT IDEAS	Idea #1	Idea #2	Idea #3	Idea #4	Idea #5
Criteria #1					
Criteria #2					
Criteria #3					



# ENVIRONMENTAL ACTION PLANNING WORKSHEET

## ASKING FOR HELP: LISTING CONTACTS

Name: \_\_\_\_\_ Class: \_\_\_\_\_

Who can help you make your action project a success? You may need to ask for permission to do something, find an expert to help with a specific task, or recruit volunteers from your community or school to help make your project a reality.

Use this first page to list all the people or groups you should contact about your action project. Then use the second page to draft your requests for help. You'll complete the second page for each person or group, so make sure to make enough blank copies before filling in the questions.

	Person/Group	Why do you need their help? (Are you asking for permission? To borrow equipment? For their time and expertise?) Be as specific as possible.
1		
2		
3		
4		
5		



# ENVIRONMENTAL ACTION PLANNING WORKSHEET

## ASKING FOR HELP: *DRAFTING A REQUEST*

Name: \_\_\_\_\_ Class: \_\_\_\_\_

Use this page to draft your request for help. Complete this page for each person or group you plan to contact so you can personalize their message and be specific about what you need from them.

Person or Group: \_\_\_\_\_

Tell them about your project. What problem or issue will it address? Make this personal and connect their values to this project—**why should they want to help?**

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**What else can you share to get them interested and motivated to help?** Think about pictures, videos, news stories, etc., that would connect to their values.

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## **ENVIRONMENTAL ACTION PLANNING WORKSHEET**

### **ASKING FOR HELP: *DRAFTING A REQUEST, CONTINUED***

**Why do you need their help?** Be as specific as possible (copied and expanded from the table on the previous page).

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**What are the logistics?** Do you need help on a specific day or do you need them to complete something by a date? If they are helping on site, tell them the exact times you would need help and how they should dress. If they are loaning you equipment or signing a permission slip, tell them when and how to deliver these items.

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**What is the best way to communicate with this person or group** (email, phone call, letter)? Include your contact information so they can respond easily and follow up with additional questions.

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# ENVIRONMENTAL ACTION PLANNING WORKSHEET

## MAINTENANCE

Name: \_\_\_\_\_ Class: \_\_\_\_\_

Many action projects are not one-and-done deals—they require someone to take care of them for years to come. Use the maintenance table to plan out what needs to happen for the next couple years to keep this project a success. Add additional pages of detailed task instructions or contact information if needed.

**Maintenance Manager:** Who will be in charge of this maintenance schedule? Make plans for at least the first year of maintenance. Will it be a student (one of you?), a teacher/staff, a class, or a club?

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Maintenance Task	How often? <i>(weekly, monthly, seasonal, etc.)</i>