

Air, Water, and Us : A ScratchJR Adventure
Grade 2: Air and Water In The Environment

<h2 style="margin: 0;">Lesson Plan</h2>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Coding Tool</td> <td style="padding: 5px;">ScratchJR</td> </tr> <tr> <td style="padding: 5px;">Cross-curricular</td> <td style="padding: 5px;">Language : Storytelling</td> </tr> </table>	Coding Tool	ScratchJR	Cross-curricular	Language : Storytelling
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<p>Big Ideas</p> <ul style="list-style-type: none"> Air and water are a major part of the environment. Our actions affect the quality of air and water, and its ability to sustain life. <p>Overall Expectations</p> <ol style="list-style-type: none"> 1. assess ways in which the actions of humans have an impact on the quality of air and water, and ways in which the quality of air and water has an impact on living things; 2. investigate the characteristics of air and water and the visible/invisible effects of and changes to air and/or water in the environment; 3. demonstrate an understanding of the ways in which air and water are used by living things to help them meet their basic needs. 	<p>Specific Expectations</p> <p>1.1 assess the impact of human activities on air and water in the environment, taking different points of view into consideration (e.g., the point of view of parents, children, other community members), and plan a course of action to help keep the air and water in the local community clean</p> <p>1.2 assess personal and family uses of water as responsible/efficient or wasteful, and create a plan to reduce the amount of water used, where possible https://youtu.be/v9wUEX6gbas</p> <p>2.7 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes</p> <p>3.3 describe ways in which living things, including humans, depend on air and water (e.g., most animals, including humans breathe air to stay alive; wind generates energy, disperses seeds; all living things need to drink or absorb water to stay alive; water is used for washing and bathing, transportation, energy generation)</p>				

Description
 Using ScratchJR, the students will program a short animation describing how living things depends on air and water. They will further explore their choices in their use of water and present at least one action or plan to reduce their usage.

<p>Materials</p> <ul style="list-style-type: none"> • Tablet (or chromebook, will run on Chrome OS) • ScratchJR Application (available on Google Play, ChromeStore or Apple Store) <ul style="list-style-type: none"> ◦ https://www.scratchjr.org/ <ul style="list-style-type: none"> ▪ Alternatively (https://scratch.mit.edu/ if students are more familiar or advanced in coding) 	<p>Computational Thinking Skills</p> <ul style="list-style-type: none"> • Algorithmic thinking • Creative computing • Problem solving (Formulate a problem)
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Introduction

Review: Discuss what you already know about ScratchJR, how to program the characters and environment.

Task: Students will discuss, in groups, will choose to focus on either air or water. They will list various ways we or animals depends on these. Secondly, have the students discuss what they do at home, and think of way they can better keep our air and water clean.

Action

Task: Once students have brainstormed and prepared some basic ideas, each group will prepare a presentation by coding characters and scenes on ScratchJR. This will present at least one dependency on water or air, as well as one bad habit and one plan of action or solution.

- Include:
 - At least, one need or dependency on air or water
 - One bad habit, at home or in the community, that impacts our air or water
 - One plan of action to help keep the air and water in the local community clean

Extension: Scale up the project by requiring specific blocks of code to realize the project. For example: using at least a dialogue block, using a loop block to repeat a movement, or having the character jump and spin etc.

Although ScratchJR allows many scenes within the application. An option is that instead of sharing one tablet in a group, each member can create one scene on his or her own tablet, which adds the challenge of ensuring that the message is consistent from scene to scene. They will have to work together to create a consistent image and code throughout the presentation.

If time permits, encourage the groups to make their code or animation more complex, adding

detail, dialog, or creative elements.

Consolidation/Extension

Presentations: Each group will share their creations and messages with the class. Students may ask questions to clarify ideas and spur some discussion.

Discussion:

- Why is clean water and air so important for us?
- What can we do at home to make our air and water better?
- Do we think we can make these plans work?
 - Like our code, what steps do you think we could take? What steps do you think we could take?
- How can we improve upon the ideas presented?
 - Coding is like problem solving, sometimes you need to go back and try a new combination.
- What can you add to your code, to better animate your message
 - How will you convince your parents with your code story?

Assessment

Observe the students as they prepare their presentations. Assess creativity, complexity of code and critical thinking in their plans of action. Furthermore, is there good collaboration, are all members participating in the discussion and coding. Are they using the code to effectively communicate their message? Are they staying on topic? Question the groups throughout the creation and coding phase to verify comprehension of the task and specific expectations.

Assess students' understanding by evaluating the information in the presentations. Use effective questioning, to ensure that all details are shared, as a strategy.

Additional Resources

- Scratch JR application help file :
 - Interface Guide: <https://www.scratchjr.org/learn/interface>
 - Blocs Guide : <https://www.scratchjr.org/learn/blocks>
 - Tips and Hints: <https://www.scratchjr.org/learn/tips>
 - Sample activities: <https://www.scratchjr.org/teach/activitie>
 - ScratchJR sample project
 - DEMO VIDEO : <https://youtu.be/v9wUeX6gbas>
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