

LESSON TYPE: The Keystone Lesson introduces the solutions in our regional Climate Action Plan to students, and highlights opportunities for continued learning and workforce opportunities. The lesson can be taught in person or online.

SUMMARY: This interactive lesson introduces students to our regional Climate Action Plan 2030 goals. Students gain a basic understanding of the range of climate solutions in the plan, and learn more about our systematic approach to reduce greenhouse gas emissions and sequester carbon. The lesson is open source, and you can adapt it and the presentation toolkit (slides, exercises, and the quiz).

If you need help, contact SAGE at ClimateEducation@WeAreSage.org or call 971-717-6570. The final slide that accompanies the lesson includes information about the Vision 2030 Team that produced the lesson. SAGE facilitates this team and can field questions.

LESSON GOAL: To help students visualize the climate solutions in our region and to highlight opportunities for continued learning and workforce opportunities.

SPECIFIC OBJECTIVES:

1. Students are able to identify collective actions that reduce reliance on fossil fuels and greenhouse gas emissions. Students have an opportunity to discuss which solutions in the Climate Action Plan are likely to be most effective.
2. Students receive information and resources for service-learning projects, and workforce opportunities.

3. If time allows, students learn about some local organizations that advance climate solutions and that offer opportunities for continued learning

STANDARDS ADDRESSED:

MS-ESS 3-3. Earth and Human Activity

Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

HS-ESS 3-2. Earth and Human Activity

Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.

HS-ESS 3-4. Earth and Human Activity

Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

CCSS-ELA-LITERACY 6-12.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on topics, texts, and issues, building on others' ideas and expressing their own clearly.

Oregon Social Studies Standards HS.50

Determine the influence of long-term climate change and variability on human migration, settlement patterns, resource use, and land uses at local to global scales.

Oregon Social Studies Standards HS.76

Propose, compare, and evaluate multiple responses, alternatives, or solutions to issues or problems; then reach an informed, defensible, supported conclusion.

MATERIALS AVAILABLE:

1. Keystone Lesson slide deck and notes
2. Activity card deck for activities #1 and #2. (these display on screen for online version)
3. Student response sheets
4. Student assessment (optional)
5. Additional service learning projects

PROCEDURE:

To prepare to teach the Keystone Lesson, you can review the notes that accompany each slide in the lesson.

OUTLINE OF LESSON

This lesson is intended to last 50 minutes. It involves about 25 minutes of presentation time and 25 minutes of activity time. The lesson is also available as two 30 minute presentations.

Slides 1-14 Introduction/Amplification

Timing: About 10 minutes - 8 for presentation and 2 minutes for discussion.

Slides 1-6 Welcome and introduction

Slide 7 - Inquiry and discussion about what climate justice means to you

Slides 8-14 Intro to Climate Action Plan

Slides 15-16 Activity #1

Timing: About 6 minutes in breakout group to discuss and record responses

In this activity, students break up into 1 of 5 breakout groups to explore ways to reduce emissions or respond to climate change in (1) the built environment and energy, (2) transportation, (3) consumption, (4) food and agriculture, and (5) tree canopies and natural systems. Students will discuss their answers with peers and record them on their Activity # 1 response sheet. After that, the whole class reconvenes and students have a chance to share their responses.

Slides 17-46 Amplification/Discussion

Timing: About 23 minutes, including time for students to respond to each topic area by group.

By group (Buildings and Energy; Transportation, etc) students share their ideas. When they finish, the presenter can amplify their responses by using the additional slides in each section, as time permits. Through these slides, the presenter shares more information about what is in the Climate Action Plan, pausing along the way to invite the students who had previously been in a breakout group on a particular topic area to share the insights. For example, one way to review these slides would be to invite the first group of students (from Activity # 1) to share their thoughts on the Built Environment, while the presenter amplifies those points with the slides. Afterwards, the second group of students (from Activity # 1) can share their thoughts on Transportation, while the presenter amplifies those points with the slides.

Slides 18-25 Students respond with answers from the breakout room on the

built environment and energy. Slides used as needed to support learning.

Slides 26-31 Students respond with answers from the breakout room on transportation and urban form. Slides used as needed.

Slides 32-38 Students respond with answers from the breakout room on consumption and waste. Slides used as needed.

Slides 39-43 Students respond with answers from the breakout room on food and agriculture. Slides used as needed.

Slides 44-46 Students respond with answers from the breakout room on tree canopy. Slides used as needed.

Slide 47 Review

Slides 48-50 Activity #2

Timing: About 10 minutes

In this activity, students analyze and evaluate the solutions in the Climate Action Plan and deliberate which would be most important to implement.

Note: The presenter can also share examples of service learning projects in the toolkit (website under development). There are different types of projects in the toolkit - some are appropriate for students to implement in their homes, schools, or communities. Students may be interested in doing a project together.

Slides 51-52 Conclusion

Timing: About 1 minute

Additional slides (if time allows)

Slides 53-67 Spotlight organizations

Timing: 5 more minutes

These slides feature examples of organizations working in the region to advance climate solutions. The slides also spotlight related workforce opportunities.

ABOUT VISION 2030:

The SAGE Vision 2030 Team offers a local, place-based approach to educate middle and high school students about the Portland metropolitan region's groundbreaking efforts to reduce greenhouse gas emissions 50 percent from 1990 levels by 2030. The Team develops locally-relevant lessons on climate solutions, service-learning offerings, and information about workforce opportunities. Learn more about the Team at www.WeAreSage.org/vision2030.