

FORTNITE

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS: STORM SHIELDS

LESSON PLAN



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UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS: STORM SHIELDS



CLASS INFORMATION

- **Grades:** 8–12 (students must be 13 or older to participate in this class)
- **Lesson timeframe:** 7–10 class periods, depending on student familiarity with Fortnite Creative
- **Featured tool:** Fortnite Creative
- **Class / learning environment:** A Fortnite-capable device with a one-to-one device-to-student ratio, and with internet connectivity. A computer lab or mobile laptop cart should provide the ideal environment.



LESSON OVERVIEW

This challenge relates to [Sustainable Development Goal 13: Climate Action](#). Since 1970, the number of natural disasters has risen 4x to over 400 per year. More than 600 million people live in coastal areas. Coastal communities like those on the Southeast coast of the United States are becoming more and more at risk due to increased storm frequency, duration, and strength. These storms bring powerful winds and ocean surges that threaten the sustainability of living by the sea.

This lesson in Fortnite Creative will give students the opportunity to design solutions based on a specific target in SDG 13: Climate Action. Students will use Fortnite Creative to share their vision of how humans can protect coastal living from these growing challenges.

In this lesson, students will build their planned coastal community in Fortnite Creative, and will retrofit and engineer new solutions to protect the residents. This lesson asks students to consider the following:

- How does the design thinking process support creative problem solving?
- How does climate impact current and future coastal development and living?
- What artificially and naturally engineered adaptations are needed for humans to continue living near the sea?

As an instructor, you can learn more about storm shields by watching the [Storm Shields Lesson Educator Video, SDG #13](#).

LEARNING GOALS AND OUTCOMES

Students will build protective storm shields for a coastal community. As a part of the process, they will:

- Learn about Sustainable Development Goal 13: Climate Action.
- Demonstrate an understanding of environmental forces affecting coastal communities.
- Apply a design thinking model to come up with a simple solution to this complex problem.
- Plan, engineer, and develop a solution to climate action that allows humans to live by the sea beyond 2030.
- Communicate this solution using Fortnite Creative, and share it with a local or global audience.

ACTIVITIES

1. INTRODUCE STUDENTS TO SDG #13

Show the following videos to create excitement about what's possible. These can be shown at different points throughout the project.

- [We The People for the Global Goals](#) featuring global celebrities
- [Understanding Goal 13: Climate Change](#)
- [SDG 13 Student Video](#)

2. BRAINSTORMING AND PLANNING A SOLUTION

Before starting the planning step, show students two more videos:

- [The Impact of Rising Sea Levels](#) As coastlines shift, see what coastal cities can do to defend themselves.
- [Designing Storm Surge Defenses](#) A wave tank experiment that demonstrates the effectiveness of various barriers, including a recurve wall and [rock armor](#).

After watching these videos, students can begin the planning and brainstorming process for the islands. Students can do this using the handout provided, and a pen or pencil and paper to sketch out what their island would look like.

1. Review Sustainable Development Goal 13: Climate Action.
2. In their own words, state the exact problem that needs to be solved.
3. Brainstorm a list of possible environmental causes for concern for coastal residents.
4. Rank the list from most to least concerning.
5. Brainstorm possible engineering methods to reduce or erase these concerns, such as natural or man-made barricades, raising buildings, using pumps, or even embracing the sea within the build.
6. Discuss the [iterative design process](#).
7. Use the handout to help plan coastal community solutions based on the points above.

Experiment with Fortnite Creative to get a sense of the different inventory items and how they work. There are hundreds of props and gallery items students can use.



Consider using (1) pillar supports, (2) rerouted traffic, (3) a ground floor wet zone, (4) a recurve wall, (5) a natural barrier, such as a hedge, or (6) a rock armor wall.

3. EXPLORATION AND KNOWLEDGE APPLICATION WITH FORTNITE CREATIVE

Now that students have done some planning and brainstorming, it's time to put that plan into action!

Students who are unfamiliar with Fortnite Creative can review [Getting Started](#), [Playing Games](#), and [Building Your First Island](#) on the [Fortnite Creative Documentation](#) site. Also use the [Fortnite Creative Glossary](#) for definitions of terms.

1. Students should begin building their coastal community in Fortnite Creative using the Shoreline Island found under [Starter Islands](#).
2. They can use any and all of the building tools — prefabs, galleries, devices, and more — found in the Creative inventory.
3. Every few class periods, ask students to reflect on their work and compare it to their initial brainstorming and planning ideas. Introduce the idea of [iterative design](#) to help think about the new ideas and changes they are making to their islands.

4. SHOW OFF YOUR WORK!

It's time for students to share their work with the class, and online, if they choose.

1. Create a [video walkthrough](#) or an [image-capture slide deck](#) to show your island to the class.
2. Reflect on some ways that you can help with this specific sustainable development goal through your daily actions. What careers and career skills are important for this growing concern?
3. Publish your video, image captures, or demonstration on social media or another school-approved platform such as Microsoft Flipgrid.

Consider using the following hashtags on Twitter and Instagram to help promote and share your island: [#EpicGames](#) [#FortniteCreative](#) [#EpicSDGs](#) [#TeachSDGs](#)

ACCESSIBILITY AND ACCOMMODATIONS

Fortnite offers adjustable settings to meet various accessibility needs:

- **Color-Blindness Support:** There are extensive color-blindness settings that can be toggled on or off at any time. To find these settings, navigate to **Game Menu > Settings > Video > Graphics**.
- **Visualize Sound Effects:** This setting turns on the visual radial indicator for sounds, such as other player steps, the direction of gunfire, or nearby treasure chest audio. To find this setting, navigate to **Game Menu > Settings > Audio > Sound**.
- **Keyboard Remapping:** Under **Keyboard Controls**, you can reassign keys on the keyboard for various controls.
- **Controller Support:** If students prefer to use a wired or wireless controller, they can change the controller mapping under **Wireless Controller**.
- **Xbox Adaptive Controller:** On PC or Xbox, students can also use the Xbox Adaptive Controller, if needed.

STANDARDS MAPPING

NEXT GENERATION SCIENCE STANDARDS (NGSS)

Global Climate Change

(HS-ESS3-5) Though the magnitudes of human impacts are greater than they have ever been, so too are human abilities to model, predict, and manage current and future impacts.

HS-ESS3-1 Construct an explanation based on evidence for how the occurrence of natural hazards and changes in climate have influenced human activity.

HS-ETS1-1 Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

ESS2.D: WEATHER & CLIMATE Reference chapter 11, What regulates weather and climate?

ESS3.B: NATURAL HAZARDS Reference chapter 11, How do natural hazards affect individuals and societies?

ISTE STANDARDS FOR STUDENTS CONNECTIONS

Empowered Learner

- Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

Innovative Designer

- Students use a variety of technologies within a design process to identify and solve problems by creating new, useful, or imaginative solutions.
- Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
- Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

Creative Communicator

- Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats, and digital media appropriate to their goals.
- Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
- Students create original works or responsibly repurpose or remix digital resources into new creations.
- Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.
- Students publish or present content that customizes the message and medium for their intended audiences.

Global Collaborator

- Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.
- Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.

Global Competencies

- Creativity, Critical Thinking, Citizenship, and Communication [Optional Collaboration]

AUTHOR CONTACT

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ASSESSMENT

This rubric is for use in assessing the results of the UN Sustainable Development Goals lesson projects based on a completed Fortnite Creative Island, a video walkthrough, or presentation based on screen captures.

Lesson Plan:

Student Name(s):

	DEVELOPING (1)	COMPETENT (2)	PROFICIENT (3)	DISTINGUISHED (4)
EPICSDGS CONTENT / LEARNING OBJECTIVES	Solution does not convey the required information or understanding as it pertains to the learning objectives.	Solution shows a basic understanding of the problem and demonstration of learning objectives.	Solution shows a basic understanding of the problem and demonstration of learning objectives.	Solution reflects understanding, planning, and synthesis of the problem and solution. Learning objectives are mastered or exceeded. information or understanding as it pertains to the learning objectives.

	DEVELOPING (1)	COMPETENT (2)	PROFICIENT (3)	DISTINGUISHED (4)
SOLUTION DEVELOPMENT	Solution has many oversights that inhibit its intended purpose.	Solution demonstrates basic functionality and has only minor oversights.	Solution functions in the way the student intended, and was developed through planning to meet the exact challenge.	Solution is functional and refined, with extra features that show applied learning and skills.
SOLUTION AESTHETICS/ DESIGN	Solution requires more attention to the look and feel of the experience and the general design and function.	Solution shows some attention to aesthetics and thoughtful design, but is incomplete or lacking in some aspects of layout and design.	Solution is organized and pleasing to the eye. It's easy to navigate, and shows clear understanding and thoughtful design.	Solution is organized, makes good use of space, shows clear use of applied knowledge, and has the audience in mind. World is inviting and thoughtful, and intentional design is apparent.
REFLECTION / PRESENTATION	The student demonstrates difficulty describing the intent of their SDGs solution.	The student can mostly describe or reflect upon the basics of the SDGs solution and intended learning objectives.	The student provides a thoughtful reflection and explanation of the project and how it relates to the desired learning outcomes.	The student can describe how their Epic SDGs solution works, how it solves the problem, and how and why they created it. They can also share one way in which they can personally help with this problem in real life.

Teacher's Feedback:



STUDENT HANDOUT FOR THE STORM SHIELDS SDG LESSON

Student Name(s):

Use this for planning your island before you start building it in Fortnite Creative.

Recommended Starter island: Shoreline Island

1. Make a rough sketch of your island by hand.
NOTE: You can get a rough overview of your island in **Build mode** by pressing the **P** key to activate your phone tool, pressing the **B** key to open the **Quick Menu**, then clicking **Show Map** at the bottom of the panel.
2. Use the sketch to plan your coastal community and begin to identify locations for accommodations and experiences.
3. When your plan is ready, seek feedback from peers and/or your teacher before heading into Fortnite Creative to prototype your plan in 3D.

Consider using your map to show:

- Paradise Palms Hotel
- Sweaty Sands Duplex (multiples if working as a team of students)
- Paradise Palms Residence
- Artificial and natural solutions and ideas
- Direction of storm surge (winds and waves from ocean)
- Traffic flow for cars