April 19-23, 2021

OC Youth Environmental Summit

PRESENTER GUIDELINES

Presented by

Thank you for your interest in the 2021 Youth Environmental Summit. Please review the Presenter Guidelines prior to submitting an application. Should you have any questions, please contact us at (714) 378-3257 or ocyouthsummit@ocwd.com.

About YES

The award-winning program you know and love - the Children's Water Education Festival - has a new look and a new name, the Orange County Youth Environmental Summit (YES).

The mission of YES is to educate students about water-related and environmental issues that support Next Generation Science Standards. Through interactive and engaging sessions, YES teaches youth that they can make a difference in protecting our resources today, tomorrow and for future generations.

YES will be held Monday, April 19 through Friday, April 23, 2021 and is open to third, fourth and fifth grade students attending school in Orange County, Calif. There is no cost to participate.

Program Format

YES will be held in a virtual format during Earth Week. This extended virtual format means more opportunities for learning and engagement. Each day of YES, teachers and students will be introduced to new content and materials, including live videos from OCWD.

Although the event itself takes place over five days, presenters are not expected to be available during this time. Rather, presenters are asked to create a prerecorded lesson that will be made available on-demand to registered teachers and their students. All videos will be accompanied by the name of the organization as well as their contact information. In addition, these videos will be characterized by grade level and area of study. Teachers can choose to watch the videos together with their class or assign them for independent study or homework. This will ensure maximum flexibility and participation during this ever-evolving school year.

We hope this format makes it easier for you and your organization to participate as well. In fact, those of you with educational programs may already have something pre-created that will work for YES.

Presenter Best Practices

In order to make your on-demand videos as engaging and educational as possible, we've compiled a few best practices.

Make it interactive
At first glance, you may be wondering how to make a prerecorded video interactive, but don't worry, it's easier than you may think. Knowledge often occurs through discovery, so don't just tell the students, but show them. For example, ask them questions about what they see on screen; encourage them to think about what would happen if you did A or B and then show them; ask them to think about where they may find real life examples of what you are talking about.

Support a Next Generation Science Standard (NGSS)
We know you have important information to share, but it is also important that your information ties back to what students are learning in school. Take a look at the NGSSs at the end of this guide to determine what standard (or standards) your presentation supports. You are not expected to meet the standard completely but your presentation must align with one or more. You will be asked for this information on the presenter application.

Design your presentation for a specific grade level
One of the benefits of hosting YES virtually is the ability to separate content by grade level. This is important to teachers and we hope it makes it easier for you as you create content, since you will have a better idea of the knowledge level and maturity of your audience. The grade level you support – 3rd, 4th or 5th – is up to you. You can even create

multiple presentations for multiple grade levels, just fill out a second or third application (different email address required for each submission.) Please view the NGSSs at the end of this guide to see what each grade is learning.

Create a digital handout or worksheet to follow along

This worksheet can be used by students as they watch your presentation. This helps keep them engaged in your presentation and can enhance learning. Ask them questions, have them fill in the blanks or record results. The worksheet can take many forms but should include information that is found in the video itself, so they need to watch it to complete it. Worksheets should be under three pages and be in PDF format.

Create a post-activity

Now that students have experienced your lesson, how can students apply their new found knowledge? Creating an activity to be completed after viewing your presentation will extend learning. It can be something done in class or at home and involve a worksheet, game, experiment, you name it. Just make it fun and something that is a natural next step. Your activity will be compiled with others into a digital workbook for all students. Post-activities should be under three pages and be in PDF format.

Do not require additional items

Students will be watching presentations from a variety of locations and requiring additional materials or supplies is not feasible. All that should be required of students is themselves and your digital worksheet if creating one. However, you may include such items on your post-activity should you wish.

Consider multiple speakers

If there are multiple people within your organization involved in the subject matter you are talking about, consider featuring them in your video. While too many people can make children lose focus, having more than one speaker to cover different topics can help liven up your presentation.

Show your location

Another great way to break things up and add excitement is so show your facility or location. Working with animals? Show them. At a water treatment facility? Let's see the pipes. Work in a laboratory? We'd love to see the equipment. Pre-recorded videos give you the opportunity to showcase areas not possible in an in-person format. Speaking directly from this area is great, but you can also use b-roll accompanied by voice over.

Change up your camera angle

Much like bringing in multiple speakers or locations, changing up your camera angle can add visual excitement and give students a better understanding of what you are

talking about. For example, if you are conducting an experiment, make sure your video shows a close up of the experiment so we can see what you're doing and the reaction it's causing.

Think about sound and lighting
To get the best quality video, you are encouraged to film in a well lit and evenly lit location free of outside noises and distractions. Using external audio equipment such as a lavalier microphone can help with sound. In the same vein, static shots are benefitted by shooting with a tripod, whereas action shots can benefit from using a stabilizing device. Please note, you are not expected to purchase new equipment to produce your video. However, being mindful of these things can make a big difference in production quality.

Video guidelines

Videos must be a minimum of 20 minutes and a maximum of one hour

Video should be in a horizontal format, 16:9 ratio

Minimum resolution: 1920 x 1080 full HD

Accepted file types: .mp4 or .mov

Record your video in English

Closed captioning is HIGHLY recommended

You are encouraged to add an end slide with your organization name and logo

Deadlines

Materials must be completed by March 19, 2021. Additional details, including where to upload materials will be communicated prior to the deadline.

Next Generation Science Standards

Due to the on-demand nature of your presentation as well as the limited timeframe, it is unlikely that your presentation will fully meet a NGSS. However, your presentation should support one or more standards.

NGSS is broken up into three sections: science and engineering practices, environmental principles and concepts and disciplinary core ideas. The latter is further broken down into sub-categories of physical sciences; life sciences; earth and space sciences; and engineering, technology and applications of science; which are then broken down by grade level. We understand this section may be a bit overwhelming. We hope the outline approach of information is helpful to you as you design your presentation. There are many links included for more detailed information.

Science and Engineering Practices

The practices describe behaviors that scientists engage in as they investigate and build models and theories about the natural world and the key set of engineering practices that engineers use as they design and build models and systems. The National Research Council (NRC) uses the term practices instead of a term like "skills" to emphasize that engaging in scientific investigation requires not only skill but also knowledge that is specific to each practice.

Although engineering design is similar to scientific inquiry, there are significant differences. For example, scientific inquiry involves the formulation of a question that can be answered through investigation, while engineering design involves the formulation of a problem that can be solved through design."
https://www.nextgenscience.org/three-dimensions

Science and engineering practices include:

☐ Asking questions (for science) and defining problems (for engineering)

☐ Developing and using models [please read more about models before selecting this one]

☐ Planning and carrying out investigations

☐ Analyzing and interpreting data

☐ Using mathematics and computational thinking

☐ Constructing explanations (for science) and designing solutions (for engineering)

☐ Engaging in argument from evidence

☐ Obtaining, evaluating, and communicating information

Environmental Principles and Concepts

"California's Environmental Principles and Concepts highlight the deep relationship between humans and the natural world . . . They are "big ideas" intended to inform standards-based instruction and fuel student inquiry."
http://www.californiaeei.org/abouteei/epc/

Environmental principles and concepts include:

☐ Principle I - People Depend on Natural Systems

The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services.

☐ Concept A. The goods produced by natural systems are essential to human life and to the functioning of our economies and cultures.

☐ Concept B. The ecosystem services provided by natural systems are essential to human life and to the functioning of our economies and cultures.

☐ Concept C. That the quality, quantity, and reliability of the goods and ecosystem services provided by natural systems are directly affected by the health of those systems.

☐ Principle II - People Influence Natural Systems

The long-term functioning and health of terrestrial, freshwater, coastal, and marine ecosystems are influenced by their relationships with human societies.

☐ Concept A. Direct and indirect changes to natural systems due to the growth of human populations and their consumption rates influence the geographic extent, composition, biological diversity, and viability of natural systems.

☐ Concept B. Methods used to extract, harvest, transport, and consume natural resources influence the geographic extent, composition, biological diversity, and viability of natural systems.

☐ Concept C. The expansion and operation of human communities influences the geographic extent, composition, biological diversity, and viability of natural systems.

☐ Concept D. The legal, economic, and political systems that govern the use and management of natural systems directly influence the geographic extent, composition, biological diversity, and viability of natural systems.

☐ Principle III - Natural Systems Change in Ways that People Benefit from and Can Influence

Natural systems proceed through cycles that humans depend upon, benefit from, and can alter.

☐ Concept A. Natural systems proceed through cycles and processes that are required for their functioning.

☐ Concept B. Human practices depend upon and benefit from the cycles and processes that operate within natural systems.

☐ Concept C. Human practices can alter the cycles and processes that operate within natural systems.

☐ Principle IV - There are no Permanent or Impermeable Boundaries that Prevent Matter from Flowing Between Systems

The exchange of matter between natural systems and human societies affects the long-term functioning of both.

☐ Concept A. The effects of human activities on natural systems are directly related to the quantities of resources consumed and to the quantity and characteristics of the resulting byproducts.

☐ Concept B. The byproducts of human activity are not readily prevented from entering natural systems and may be beneficial, neutral, or detrimental in their effect.

☐ Concept C. The capacity of natural systems to adjust to human-caused alterations depends on the nature of the system as well as the scope, scale, and duration of the activity and the nature of its byproducts.

☐ Principle V - Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors

Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

☐ Concept A. There is a spectrum of what is considered in making decisions about resources and natural systems and how those factors influence decisions.

☐ Concept B. The process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time.

Disciplinary Core Ideas

Disciplinary core ideas describe the content students are learning. They are grouped in four domains: the physical sciences; the life sciences; the earth and space sciences; and engineering, technology and applications of science.

The Engineering Technology and Applications of Science are meant to be taught within the context of one of the corresponding grade level's DCIs. They are not intended to be taught as "stand alone" content. http://www.cde.ca.gov/pd/ca/sc/ngssstandards.asp

Third Grade Disciplinary Core Ideas

Physical Sciences

PS2.A: Forces and Motion

☐ Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.)

☐ The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.)

PS2.B: Types of Interactions

☐ Objects in contact exert forces on each other.

☐ Electric, and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.

Life Sciences

LS1.B: Growth and Development of Organisms

☐ Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles.

LS2.D: Social Interactions and Group Behavior

☐ Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size.

LS3.A: Inheritance of Traits

☐ Many characteristics of organisms are inherited from their parents.

☐ Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment.

LS3.B: Variation of Traits

☐ Different organisms vary in how they look and function because they have different inherited information.

☐ The environment also affects the traits that an organism develops.

LS2.C: Ecosystem Dynamics, Functioning, and Resilience

☐ When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.

LS4.A: Evidence of Common Ancestry and Diversity

☐ Some kinds of plants and animals that once lived on Earth are no longer found anywhere.

☐ Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments.

LS4.B: Natural Selection

☐ Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.

LS4.C: Adaptation

☐ For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.

LS4.D: Biodiversity and Humans

☐ Populations live in a variety of habitats, and change in those habitats affects the organisms living there.

Earth and Space Sciences

ESS2.D: Weather and Climate

☐ Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.

☐ Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.

ESS3.B: Natural Hazards

☐ A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.

Engineering and Technology and Applications of Science (same for 3 – 5th grade)

ETS1.A: Defining and Delimiting Engineering Problems

☐ Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.

ETS1.B: Developing Possible Solutions

☐ Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.

☐ At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs.

☐ Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.

ETS1.C: Optimizing the Design Solution

☐ Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.

Fourth Grade Disciplinary Core Ideas

Physical Sciences

PS3.A: Definitions of Energy

☐ The faster a given object is moving, the more energy it possesses.

☐ Energy can be moved from place to place by moving objects or through sound, light, or electric currents.

PS3.B: Conservation of Energy and Energy Transfer

☐ Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced.

☐ Light also transfers energy from place to place.

☐ Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy.

PS3.C: Relationship Between Energy and Forces

☐ When objects collide, the contact forces transfer energy so as to change the objects' motions.

PS3.D: Energy in Chemical Processes and Everyday Life

☐ The expression “produce energy” typically refers to the conversion of stored energy into a desired form for practical use.

PS4.A: Wave Properties

☐ Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is no net motion in the direction of the wave except when the water meets the beach. (Note: This grade band endpoint was moved from K–2.)

☐ Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between wave peaks).

PS4.B: Electromagnetic Radiation

☐ An object can be seen when light reflected from its surface enters the eyes.

PS4.C: Information Technologies and Instrumentation

☐ Digitized information can be transmitted over long distances without significant degradation. High-tech devices, such as computers or cell phones, can receive and decode information—convert it from digitized form to voice—and vice versa.

Life Sciences

LS1.A: Structure and Function

☐ Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.

LS1.D: Information Processing

☐ Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal’s brain. Animals are able to use their perceptions and memories to guide their actions.

Earth and Space Sciences

ESS1.C: The History of Planet Earth

☐ Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed.

ESS2.A: Earth Materials and Systems

☐ Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.

ESS2.B: Plate Tectonics and Large-Scale System Interactions

☐ The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features areas of Earth.

ESS2.E: Biogeology

☐ Living things affect the physical characteristics of their regions.

ESS3.A: Natural Resources

☐ Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not.

ESS3.B: Natural Hazards

☐ A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, volcanic eruptions). Humans cannot eliminate the hazards but can take steps to reduce their impacts.

Engineering and Technology and Applications of Science (same for 3 – 5th grade)

ETS1.A: Defining and Delimiting Engineering Problems

☐ Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be

compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.

ETS1.B: Developing Possible Solutions

☐ Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.

☐ At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs.

☐ Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.

ETS1.C: Optimizing the Design Solution

☐ Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.

Fifth Grade Disciplinary Core Ideas

Physical Sciences

PS1.A: Structure and Properties of Matter

☐ Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model shows that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects.

☐ The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish.

☐ Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.)

PS1.B: Chemical Reactions

☐ When two or more different substances are mixed, a new substance with different properties may be formed.

☐ No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.)

PS2.B: Types of Interactions

☐ The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.

PS3.D: Energy in Chemical Processes and Everyday Life

☐ The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water).

Life Sciences

LS1.C: Organization for Matter and Energy Flow in Organisms

☐ Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion.

☐ Plants acquire their material for growth chiefly from air and water.

LS2.A: Interdependent Relationships in Ecosystems

☐ The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem.

LS2.B: Cycles of Matter and Energy Transfer in Ecosystems

☐ Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment.

Earth and Space Sciences

ESS1.A: The Universe and its Stars

☐ The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth.

ESS1.B: Earth and the Solar System

☐ The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year.

ESS2.A: Earth Materials and Systems

☐ Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather.

ESS2.C: The Roles of Water in Earth's Surface Processes

☐ Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere.

ESS3.C: Human Impacts on Earth Systems

☐ Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.

Engineering and Technology and Applications of Science (same for 3 – 5th grade)

ETS1.A: Defining and Delimiting Engineering Problems

☐ Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.

ETS1.B: Developing Possible Solutions

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☐ Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.