

**BY THE NUMBERS may advance the following**  
**NEXT GENERATION HIGH SCHOOL SCIENCE STANDARDS**

**MATTER IN ORGANISMS AND ECOSYSTEMS**

Students who demonstrate understanding can:

**HS-LS1-5.** Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.

**HS-LS2-5.** Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.

**INETERDEPENDENT RELATIONSHIPS IN ECOSYSTEMS**

Students who demonstrate understanding can:

**HS-LS2-7.** Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

**EARTH'S SYSTEMS**

Students who demonstrate understanding can:

**HS-ESS2-5.** Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.

**WEATHER AND CLIMATE**

Students who demonstrate understanding can:

**HS-ESS2-4.** Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.

**HUMAN SUSTAINABILITY**

Students who demonstrate understanding can:

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

**HS-ESS3-3.** Create a computational simulation to illustrate the relationships among the management of natural resources, the sustainability of human populations, and biodiversity.

**HS-ESS3-4.** Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

## **ENGINEERING DESIGN**

Students who demonstrate understanding can:

**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.

**HS-ETS1-3.** Evaluate a solution to a complex real-world problem based on prioritized criteria and tradeoffs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.