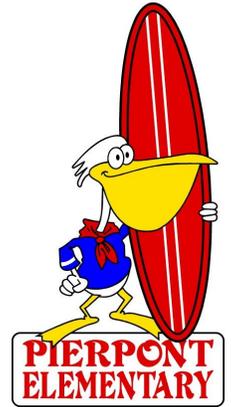


Marine Science at Pierpont!



Dear Pierpont Families,

We are excited to announce that we will be focusing on marine science as we begin to implement the nationally adopted Next Generation Science Standards (NGSS) this year. While all schools will be implementing these new standards, Pierpont teachers spent time over the summer to create, connect and provide opportunities for our students to look at these new standards with a unique focus on marine science. Our teachers came back from summer two days early to collaborate and build a curriculum that is engaging, hands on, inquiry driven, and relevant to our unique location. We look forward to sharing our work with you this year as we help our students discover meaningful, real world connections to science. Marine science will continue to be the focus of our work in the years to come.

Please continue below to read about the yearly objectives for each grade level. In addition to a marine focus throughout the year, each grade level will participate in a science project this spring that will utilize project based learning. These projects will allow students to explore, create, propose solutions, explore alternatives, work collaboratively, and present their understanding of the marine science curriculum. These spring projects will be framed by a guiding question, where students explore possibilities and will share their findings with families and their peers. The NGSS standards, and Pierpont's marine science focus, will help our students problem solve and develop critical thinking skills. We are excited to provide our students with these unique opportunities that will help them understand science and develop lifelong skills.

Sincerely,
Katie Tedford
Principal



Kindergarten-Kindergarten students will explore characteristics of marine animals and plants as well as the relationships within their ecosystem. They will investigate the ways in which organisms change their marine habitat and the impact those changes create. Students will observe and analyze weather patterns and gravitational pull within the marine habitat, and will design an object to investigate the weather's impact on the beach environment. **Spring guiding question:** How can we change the speed of a sailboat?

1st Grade - In first grade, students will investigate coastal and marine life and recognize patterns in the world around them. Students will use natural objects to conduct investigations of how light travels and interacts with different objects. They will explore the nature of sound, including sounds produced by marine animals. Students will investigate patterns of the sun and moon and their effects on seasons, tides, and migrations. First graders will recognize patterns in marine life that prompt them to start asking questions about cause and effect relationships. **Spring guiding question:** How can we stay safe from sharks in the ocean?

2nd Grade - In second grade students will explore how the ocean has shaped and interacts with Earth's landscapes from mountain tops and beaches to the seafloor. Students will learn to describe differences in various materials' properties, explain how these properties can change over time, and how they can be used.

Students will also investigate processes that sculpt landforms and then create engineering solutions (build models) that slow down those changes. Students will investigate the needs of plants and animals and engineer models that support their structure and function. **Spring guiding question:** Why is our bike path eroding? Propose a possible solution to the erosion.

3rd Grade - Third graders will investigate and analyze data regarding the unique and diverse marine life cycles. Students will demonstrate knowledge using project based understanding to produce graphic, google, windows, or video to demonstrate how marine life relies on inherited traits, grouping, and adaptation to survive. **Spring guiding question:** How can we reduce the amount of plastic entering the ocean?

4th & 5th Grade (2016-17)* - Fourth graders will learn about the many benefits of wave energy. Students will investigate local watersheds and other ways humans have impacted the marine environment. The water cycle will be investigated; including global climate change. Students will investigate pollution in the marine environment. Students will study marine animals and how they communicate. We will examine how technology is used to enhance the study of the ocean and it's marine life. Students will look at tsunamis. Students will look at ocean zones and compare and contrast the amount of sunlight each receives and how that can impact marine life. Students will compare the impacts of oil production on platforms to alternative energy sources. Students will learn how to use a topographical map of the ocean floor to study its deep sea trenches. **Spring guiding question:** How can we harness the energy from waves to produce electricity?

4th & 5th Grade (2017-18)* - Fifth grade students will learn about energy and matter within the marine ecosystem and how the Sun and Moon can impact this ecosystem. Areas of study will include: physical and chemical properties of ocean water; physical and chemical changes of ocean water caused by human interaction; marine food webs and ecosystems; water on Earth and the unique situation it provides for life on our planet; the water cycle and its effect on weather, climate, weathering, and erosion; the pull of the moon and its effect on ocean tides; human impact on the health of the marine ecosystem; and the importance of how we can protect this fragile marine environment with all of its natural resources. **Spring guiding question:** coming next year.

*4th and 5th grade curriculum repeats every other year to ensure that all Pierpont students are exposed to both sets of standards.

NGSS Science Model:

