Project WET: Blue Planet

* Activities are correlated as written. However, by using the extensions or adapting the activity using the grey-shaded text, additional correlations or parts of correlations are met.

** Gray shaded areas demonstrate additional connections that can be made/strengthened with a few minor additions and/or restructuring of activity.*

** Blue text represents the Extension section of the activity.*

Grade: 2	Earth's Systems	Project WET Guide, Page #: Guide 2.0, p. 125

Brief Lesson Description: Students participate in a whole body exercise to simulate the movement of water through a river and its watershed.

Performance Expectation: 2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

Performance Expectation: 2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.

Performance Expectation: 2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid.

Science & Engineering Practice(s)	Disciplinary Core Idea(s)	Crosscutting Concept(s)
Developing and Using Models Develop a model to represent patterns in the natural world. **(2-ESS2-2)** • *Students identify land and water areas on a globe. (PreK – 2 Option)* • *Students count and sort to determine that water covers the greater area of a globe of the Earth. (PreK – 2 Option)* • *Students color a sketch of the Earth to determine that water covers the greater area of Earth. (PreK – 2 Option)* • *Students identify locations where water resides on the planet – i.e., ocean, rivers, lakes, glaciers, etc. on a map or globe.* **Constructing Explanations and Designing Solutions** Make observations from several sources to construct an evidence-based account for natural phenomena. **(2-ESS1-1)** • *Students count and sort to determine that water covers the greater area of a globe of the Earth. (PreK – 2 Option)* • *Students color a sketch of the Earth to determine that water covers the greater area of Earth. (PreK – 2 Option)* • *Students read stories or gather and label pictures describing locations where water resides on the planet – i.e., ocean, rivers, lakes, glaciers, etc.* • *Students order images of where water resides on the planet from shortest to longest time and compare with other groups and to actual estimates.*	**ESS1.C: The History of Planet Earth** Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. **(2-ESS1-1)** • *Students read stories or gather and label pictures describing locations where water resides on the planet – i.e., ocean, rivers, lakes, glaciers, etc.* • *Students order images of where water resides on the planet from shortest to longest time and compare with other groups and to actual estimates (Part II, steps 1-6).* **ESS2.B: Plate Tectonics and Large-Scale System Interactions** Maps show where things are located. One can map the shapes and kinds of land and water in any area. **(2-ESS2-2)** • *Students identify land and water areas on a globe. (PreK – 2 Option)* • *Students count and sort to determine that water covers the greater area of a globe of the Earth. (PreK – 2 Option)* • *Students color a sketch of the Earth to determine that water covers the greater area of Earth. (PreK – 2 Option)* • *Students identify locations where water resides on the planet – i.e., ocean, rivers, lakes, glaciers, etc. on a map or globe.* **ESS2.C: The Roles of Water in Earth's Surface Processes** Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. **(2-ESS2-3)** • *Students identify land and water areas on a globe. (PreK – 2 Option)* • *Students count and sort to determine that water covers the greater area of a globe of the Earth. (PreK – 2 Option)* • *Students color a sketch of the Earth to determine that water covers the greater area of Earth. (PreK – 2 Option)*	**Patterns** Patterns in the natural world can be observed. **(2-ESS2-2), (2-ESS2-3)** • *Students identify land and water areas on a globe. (PreK – 2 Option)* • *Students read stories or gather and label pictures describing locations where water resides on the planet – i.e., ocean, rivers, lakes, glaciers, etc.* • *Students order images of where water resides on the planet from shortest to longest time and compare with other groups and to actual estimates.* **Stability and Change** Things may change slowly or rapidly. **(2-ESS1-1)** • *Students read stories or gather and label pictures describing locations where water resides on the planet – i.e., ocean, rivers, lakes, glaciers, etc.* • *Students order images of where water resides on the planet from shortest to longest time and compare with other groups and to actual estimates.*

Obtaining, Evaluating, and Communicating Information Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question. **(2-ESS2-3)** • *Students identify land and water areas on a globe. (PreK – 2 Option)* • *Students count and sort to determine that water covers the greater area of a globe of the Earth. (PreK – 2 Option)* • *Students color a sketch of the Earth to determine that water covers the greater area of Earth. (PreK – 2 Option)* • *Students read stories or gather and label pictures describing locations where water resides on the planet – i.e., ocean, rivers, lakes, glaciers, etc.* • *Students identify locations where water resides on the planet – i.e., ocean, rivers, lakes, glaciers, etc. on a map or globe.*	• *Students read stories or gather and label pictures describing locations where water resides on the planet – i.e., ocean, rivers, lakes, glaciers, etc.* • *Students order images of where water resides on the planet from shortest to longest time and compare with other groups and to actual estimates.*	

NGSS Common Core Connections:

ELA/Literacy –

RI.2.1 Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text. (2-ESS1-1)

RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-ESS1-1)

W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-ESS1-1)

W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-ESS1-1), (2-ESS2-3)

SL.2.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
a. Give and follow three- and four-step oral directions. (2-ESS1-1)

Mathematics –

MP.2 Reason abstractly and quantitatively. (2-ESS2-1), (2-ESS2-2)

MP.4 Model with mathematics. (2-ESS1-1), (2-ESS2-2)

2.NBT.1-4 Understand place value. (2-ESS1-1)

2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. (2-ESS2-2)

Connections to other Common Core Standards at this Grade Level: SL.K-12.1; SL.K-12.6; 2.MD.10

Additional SEP Connections: Grades K-2	
Asking questions (for science) and defining problems (for engineering)	Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested. • Ask questions based on observations to find more information about the natural and/or designed world(s). • Ask and/or identify questions that can be answered by an investigation.
Developing and using models	Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. • Distinguish between a model and the actual object, process, and/or events the model represents. • Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s).

Planning and carrying out investigations	Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. With guidance, plan and conduct an investigation in collaboration with peers (for K). • Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. • Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons. • Make predictions based on prior experiences.
Analyzing and interpreting data	Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. • Record information (observations, thoughts, and ideas). • Use and share pictures, drawings, and/or writings of observations. • Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems. • Compare predictions (based on prior experiences) to what occurred (observable events).
Using mathematics and computational thinking	Mathematical and computational thinking in K–2 builds on prior experience and progresses to recognizing that mathematics can be used to describe the natural and designed world(s). • Use counting and numbers to identify and describe patterns in the natural and designed world(s). • Describe, measure, and/or compare quantitative attributes of different objects and display the data using simple graphs.
Constructing explanations (for science) and designing solutions (for engineering)	Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence based accounts of natural phenomena and designing solutions. • Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.
Engaging in argument from evidence	Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s). • Identify arguments that are supported by evidence. • Distinguish between explanations that account for all gathered evidence and those that do not. • Analyze why some evidence is relevant to a scientific question and some is not. • Distinguish between opinions and evidence in one's own explanations. • Listen actively to arguments to indicate agreement or disagreement based on evidence, and/or to retell the main points of the argument. • Construct an argument with evidence to support a claim.
Obtaining, evaluating, and communicating information	Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information. • Read grade-appropriate texts and/or use media to obtain scientific and/or technical information to determine patterns in and/or evidence about the natural and designed world(s). • Describe how specific images (e.g., a diagram showing how a machine works) support a scientific or engineering idea. • Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question and/or supporting a scientific claim. • Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas.

Additional Crosscutting Concepts by Grade Level K-2	
Patterns	Children recognize that patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.
Scale, Proportion, and Quantity	Students use relative scales (e.g., bigger and smaller; hotter and colder; faster and slower) to describe objects. They use standard units to measure length.
Systems and System Models	Students understand objects and organisms can be described in terms of their parts; and systems in the natural and designed world have parts that work together.
Stability and Change	Students observe some things stay the same while other things change, and things may change slowly or rapidly.

Correlation Comments	**Correlator Initials:** DBB
Blue Planet correlates to the 2nd grade NGSS Performance Expectations 2-ESS2-1, 2-ESS2-2 and 2-ESS2-3 *as written*, BUT only if elements from the activity are integrated into the existing K-2 Option and I've included a few other suggestions shaded in gray in the correlations to the dimensions to better align the activity and correlate to the connecting CCSS. I would also love to see the existing Pre K-2 Option integrated into a revision of the activity directions to create a differentiated flow from 2nd grade up, but didn't see a quick and easy way to do this. Suggest running all of this by the ECE group on the P & P WET team and others with expertise at these grade levels.	