

## Grade 2: Cited CCCs and their Bullets

**PATTERNS** In Grades K-2, children recognize that patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.

- **Patterns in the natural world can be observed. (2-ESS2-2), (2-ESS2-3), (2-PS1-1)**

**CAUSE AND EFFECT** In Grades K-2, students learn that events have causes that generate observable patterns. They design simple tests to gather evidence to support or refute their own ideas about causes.

- **Events have causes that generate observable patterns. (K-ESS3-2), (K-ESS3-3), (K-PS3-1), (K-PS3-2), (2-LS2-1), (2-PS1-4)**
- **Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS2-1), (K-PS2-2), (1-PS4-1), (1-PS4-2), (1-PS4-3), (2-PS1-2)**

**ENERGY AND MATTER** In Grades K-2, students observe that objects may break into smaller pieces, be put together into larger pieces, or change shapes.

- **Objects may break into smaller pieces and be put together into larger pieces, or change shapes. (2-PS1-3)**

**STRUCTURE AND FUNCTION** In Grades K-2, students observe that the shape and stability of natural and designed objects are related to their function(s).

- **The shape and stability of structures of natural and designed objects are related to their function(s). (K-2-ETS1-2), (1-LS1-1), (2-LS2-2)**

**STABILITY AND CHANGE** In Grades K-2, students observe that some things stay the same while other things change and that things may change slowly or rapidly.

- **Things may change slowly or rapidly. (2-ESS1-1), (2-ESS2-1)**

## Dr. Art's Recommendations re CCCs in Grade 2

**NOTE: Please read the Dr. Art recommendations for the K-2 Grade Span before reading the recommendations for this grade level.**

As in Kindergarten and Grade 1, the two main cited CCCs in Grade 2 are **Patterns** and **Cause and Effect**. These two CCCs are particularly appropriate for second grade since humans naturally see patterns in the world, and also try to explain the patterns in terms of what might be causing them.

**Patterns** that are embedded in Grade 2 Performance Expectations and phenomena include the observable properties of materials (2-PS1-1) as well as the shapes and kinds of land and water in an area (2-ESS2-2). The Grade 2 **Patterns** CCC bullet is more simply stated than it is in prior grades so it is best to use the more complex description that “patterns in the natural world can be observed, used to describe phenomena, and used as evidence.”

The “used as evidence” phrase in the above sentence directly connects **Patterns** with the **Cause and Effect** CCC. Two citations for this CCC relate back to **Patterns** (“events have causes that generate observable patterns”) whereas the other citation focuses on testing causal explanations: “Simple tests can be designed to gather evidence to support or refute student ideas about causes.” Performance Expectation 2-PS1-2 leads to experiences where students test different materials to determine which have the properties that are best suited for an intended purpose, an engaging context for testing cause and effect relationships.

Second Grade also includes one citation for the CCC of **Energy and Matter**, two citations for the CCC of **Structure and Function**, and one citation for the CCC of **Stability and Change**. Note that each of the bullet statements for these three different CCCs can also be considered as a statement of a **Pattern**. For example, Performance Expectation 2-ESS1-1 states: “Use information from several sources to provide evidence that Earth events can occur quickly or slowly.” The phenomena that students research and cite can be described both as examples of **Stability and Change** and also of **Patterns**.

This overlap of other CCCs with the **Patterns** CCC can help students appreciate that some patterns are so general that they provide an important way to begin to understand and investigate a new phenomenon. Instead of looking for any kind of pattern, learners can be guided to look at whether and how a phenomenon changes; how energy and matter are involved; or how the structure of objects are related to their functions. Which CCC is used or cited depends on the purpose of the investigation, the details of the specific phenomenon, and/or the personality, skills and prior experiences of the investigator. There is no single correct CCC that must be exclusively used in association with a given phenomenon.