National and State Standards Mapping

Where does EarthCaching fit into school curriculum – both subject and level, and variations across states?
EarthCaching:

(T) Technology — Use of GPS, maps, latitude and longitude, computer/web site use.

(G) Geologic and Geographic — Places with geologic and environmental significance; how our planet has been shaped by geological processes, how we manage the resources, and how scientists and geographers gather evidence to learn about the Earth.

EarthCaching sites include — sedimentary, igneous, and metamorphic rock exposures and road cuts, fossil sites, volcanic features, canyons, overlooks, museums, mining sites, mineral sites, erosional features, caves/karst, coastal or river features, glaciers and glacial features, structural features (i.e. San Andres Fault, anticlines, synclines, etc.), aquifer springs, hot springs, historical sites, submerged forests and peat bogs, geomorphological features, impact crater sites, and even building stone tours if educational.

Geography Standard 1 – T
How to use maps and other geographical representations, tools, and technologies to acquire, process, and report information from a spatial perspective.

To support student understanding of maps and geography with the newest technology. To promote an understanding of longitude and latitude when using Geographic Positioning Systems. As such systems become increasingly common in the home, school, and workplace, people will learn to use them as comfortably and effectively as traditional printed materials.

5–8
1. How to make and use maps, globes, graphs, charts, models, and databases to analyze spatial distributions and patterns — know principal lines of longitude and latitude.

9–12
2. How to use technologies to represent and interpret Earth’s physical and human systems — GPS, latitude, longitude.

Geography Standard 3 – T, G
How to analyze the spatial organizations of people, places, and environments on Earth’s surface.

5–8 and 9–12
1. How to use the elements of space to describe spatial patterns…resources, terrain, climate, topography, soil, rocks.

Geography Standard 4 – G
The physical and human characteristics of places.

5–8
1. How different physical processes shape places.

A. Use field observations, maps and other tools to identify and compare the physical
characteristics of places; hypothesize regarding locations of places shaped by natural hazards such as earthquakes, volcanoes, floods, etc.

9–12
2. The changing physical and human characteristics of a place.

A. Explain from a variety of points of views, as exemplified by being able to…explain why places have specific physical characteristics in different parts of the world (i.e. effects of tectonic or climatic processes).

B. Describe and interpret physical processes that shape places, as exemplified by being able to describe forces from within Earth influence the character of place; describe and analyze the importance of erosional processes in shaping places.

**Geography Standard 7 – G**

The physical processes that shape the patterns of Earth’s surface.

5–8
1. How physical processes shape patterns in the physical environment.

3. How physical processes influence the formation and distribution of resources — fossils fuels, hydropower, and soils.

4. How to predict the consequences of physical processes on Earth’s surface.

9–12
1. The dynamics of the four basic components of Earth’s physical systems — the atmosphere, biosphere, lithosphere, and hydrosphere.

2. The interaction of Earth’s physical systems.

3. The spatial variation in the consequences of physical processes across Earth’s surface — plate tectonics effects, earthquakes, and volcanoes.

**Geography Standard 14 – T & G**

How human actions modify the physical environment.

5–8
1. The consequences of human modification of the physical environment — analyze the consequences (pollution, dams, levees, etc.).

9–12
1. The role of technology in the capacity of the physical environment to accommodate human modification ….old mines, levees, canals, dams, and beach modifications.

2. The significance of the global impacts of human modification of the physical environment such as…sediment runoff, soil degradation, and mining.
National Science Education Standards (NSES)

**NSES Content Standard D: Earth and Space Science — G**

5–8
Structure of the Earth’s system — land forms, crustal deformation, rock cycle, soils, and water.

Earth’s history — fossils, Earth’s processes.

9–12
Geochemical cycles

The origin and evolution of the Earth system — geologic time.

**NSES Content Standard E: Science and Technology — T**

5–8
Understandings about science and technology — science and technology are reciprocal.

**NSES Content Standard F: Science in Personal and Social Perspectives — T & G**

5–8
Natural Hazards

Science and technology in society — technology influences society through its products and processes.

9–12
Natural resources — human populations use resources in the environment; the earth does not have infinite resources.

Natural and human–induced hazards

Science and technology in local, national, and global challenges

**Technology Foundation Standards for Students**

1. Basic operations and concepts:
   - Students demonstrate a sound understanding of the nature and operation of technology systems.
   - Students are proficient in the use of technology.

2. Technology research tools:
   - Students use technology to locate, evaluate, and collect information from a variety of sources.
   - Students use technology tools to process data and report results.
Standards for the English Language Arts
Sponsored by the International Reading Association and the National Council of Teachers of English:

1. Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies, and their understanding of textual features (e.g., sound–letter correspondence, sentence structure, context, graphics).

2. Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

3. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

4. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

Mathematics Standards: Number and Operations Standard
Grades 6–8 Expectations:

In grades 6–8 all students should develop an understanding of large numbers and recognize and appropriately use exponential, scientific, and calculator notation.