ANSWER KEY
PLT: Unit Study Guide
Grades K-2, Treemendous Science!

1) The *Treemendous Science!* Introduction has eight component parts (Unit Approach; Academic Rigor; Flexible Teaching Levels; Instructional Models; Learning Progressions; Lesson Planning Timeline and Tips; Organization and Navigation; Collaborative Discussion Strategies). Locate and review these sections. Which one was most beneficial to you and why?

   Answers will vary. An example might highlight the "Learning Progressions" section, as it clearly shows how the 3 different Teaching Levels (A, B, and C) within this K-2 unit build on each other, repeat content, and deepen content over time.

2) Which five Next Generation Science Standards (NGSS) performance expectations were used to build this instructional unit?

   - K-LS1-1 – From Molecules to Organisms: Structures and Processes. Use observations to describe patterns of what plants and animals (including humans) need to survive.
   - K-ESS2-1 – Earth's Systems. Use and share observations of local weather conditions to describe patterns over time.
   - 1-ESS-1-2 – Earth's Place in the Universe. Make observations at different times of year to relate the amount of daylight to the time of year.
   - 2-PS1-1 – Matter and its Interactions. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
   - 2-LS4-1 – Biological Evolution: Unity and Diversity. Make observations of plants and animals to compare the diversity of life in different habitats.

3) List the 5 parts of the instructional model applied to this unit, and briefly describe its approach.

   The 5E Instructional Model includes Engage, Explore, Explain, Elaborate, and Evaluate. This model is based on the constructivist approach to learning, which understands that learners build or construct new ideas from knowledge they already have.

4) Review the "Team Teaching Progressions" section (the third item under the *Treemendous Science!* header in left-hand sidebar), then respond: a) What is the purpose of this section?, b) Do you think this would be a useful information for K-2 teachers?, c) Why/ Why not?

   a) The "Team Teaching Progressions" section supports the academic planning cross-collaboration that can take place among K-2 teachers. This section presents three different options that K-2 teachers might use when applying unit content to their own academic planning.
   b) Yes, absolutely!
   c) Answers will vary, but an example response might include: Reviewing the "Team Teaching Progressions" was useful because K-2 teachers might not have considered applying Level B or Level C content to a high-achieving Kindergarten student. This approach is detailed in the "Option 1 – Individualistic" section.

5) Click on any one of the three levels from the left hand sidebar, under Teaching Levels (Level A – Kindergarten, Level B – Grade 1, or Level C – Grade 2). What new menu appears and why is it useful?

A new gray navigation menu appears at the top of the page. The 6 gray tabs include Overview, Engage, Explore-Explain-Elaborate, Evaluate, Enrich, and Tools. These tabs are essential, as they include all of the unit content for this Teaching Level.

6) Click on the "Engage" gray tab for your selected teaching Level, and read through the information provided on this page. In what ways does this activity a) engage the student learner and b) serve as an informal pre-assessment opportunity for the teacher?

Answers will vary, but here is a sample response using Level A – Engage: Picture a Tree:
a) Active practices, such as drawing, comparing, and talking, will pique student interest right away.
b) The level of detail displayed in the student drawings gives clues to students' prior experiences, knowledge, and understanding. Their general attitudes and feelings about trees will also be revealed when discussing the prompts in Step 4.

7) Click on the "Explore, Explain, Elaborate" gray tab for your selected Teaching Level, then respond: a) In addition to the framing Essential Questions found on this page, where else might you look for your Level's overarching learner outcomes and crosscutting concepts? and b) How many individual lessons comprise your teaching Level?

a) The Overview tab for each Level also contains the learner outcomes and crosscutting concepts.
b) Level A = 3 lessons, Level B = 4 lessons, and Level C = 5 lessons

8) Select and click on one of the individual lessons that comprise your teaching Level, and respond: a) what is useful about the way in which this information is organized?, and b) How will you navigate among and between your Level's individual lessons in the future?

a) The content is broken down into sections with headers in a chronological way.
b) The dropdown menu under the Explore, Explain, Elaborate tab navigates between multiple lessons in any one Teaching Level.

9) Click on the "Evaluate" gray tab for your selected activity, and review the content. Why are there three different types of evaluation offered?

These three different options review and support three different types of learner evaluation:

- The pre-assessment section reviews what students did **before instruction began**, allowing teachers to better understand students' preexisting knowledge.
- The formative section offers options to monitor student learning and provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning. It **occurs throughout** the course of instruction.
- The final performance assessment section offers options for summative evaluation. The goal of summative evaluation is to assess student learning **at the end** of an instructional unit by comparing it against some standard or benchmark.

10) Take a few moments to explore either the Learning Centers OR GreenSchools Appendix. How might you envision teachers using this information to support the selected Teaching Level?

Answers will vary, but sample responses might include:

Learning Centers: Educators can use the enrichments offered here to support early childhood instruction at any Teaching Level (A, B, or C) and also incorporate new discipline areas. The K-2 unit is specifically focused on science, but the Learning Centers offer suggestions for incorporating art, discovery tables, math and manipulatives, woodworking, and dramatic and outdoor play.

GreenSchools: Educators can use the enrichments offered here to support early childhood instruction at any Teaching Level (A, B, or C) and also incorporate the concept of school audits. PLT's GreenSchools programs offers five audits in the following areas: energy, environmental quality, school site, waste and recycling, and water.

Bonus: Note the small "Toggle Highlight Colors" toolbar, located near the top right corner of your screen. What does clicking the options presented here do? How might this be useful in planning classroom instruction? Can you discern what the different colors signify?

When enabled and selected, these buttons will simultaneously display and define various academic standard connections and/or glossary terms. This is extremely useful for Principals and District-level leaders to illustrate how a program such as PLT meets, addresses, and aligns with required benchmarks.

As for the colored text, the variations signify curricular connections with the following:

- Red = NGSS (Next Generation Science Standards)
- Purple = Common Core (English Language Arts and Mathematics)
- Green = C3 Framework for Social Studies (College, Career, and Civic Life)
- Black = Glossary Terms