# EID-500 High-Level Design Document

**Initial Design Plan**

Based on the instructional needs identified in your needs assessment, complete the design elements listed below. Your responses to the prompts below should be brief but thorough.

| **Learner Characteristics** |
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| *Describe the pertinent attributes of the target audience.* |
| Target audience: 7th grade science students with varied reading/writing proficiency, including Emergent Bilingual (EB) learners and students with SPED/504 accommodations.<br><br>Key attributes and implications for design:<br><br>• Many students can state a claim but need explicit support selecting relevant evidence and explaining reasoning that links evidence to a science concept.<br><br>• Students prefer short teacher modeling, worked examples/non-examples, guided practice, and opportunities to revise after feedback (Graham & Perin, 2007; Hattie & Timperley, 2007).<br><br>• Technology access: 1:1 Chromebooks and Canvas in class; limited home internet for some students, so materials must be printable and completable during class time. |
| **Content** |
| *State two or three instructional goals that you identified in your needs assessment in Topic 2.* |
| 1) Increase the percentage of 7th grade science students scoring a 2 (proficient) on the 0-2 CER rubric from ~50% to ≥80% on a post-assessment CER prompt. |

2) Students will identify the purpose of Claim, Evidence, and Reasoning, and distinguish evidence from opinion in sample responses.

3) Students will write a complete CER response using a grade level prompt and data source, then revise using a checklist before submission.

*Write at least two learning objectives based on your identified instructional goals. Ensure the objectives are observable and measurable.*

Objective 1: Students will label Claim, Evidence, and Reasoning in sample responses and identify whether a statement is evidence or opinion with at least 80% accuracy.

Objective 2: Students will select at least two accurate, relevant pieces of evidence from a provided data table/graph to support a claim.

Objective 3: Students will compose a complete CER explanation that earns a 2 (proficient) on the 0–2 CER rubric, including reasoning that links evidence to an appropriate science concept.

**Delivery and Instruction**

*Describe the delivery method and instructional strategies you will use.*

Delivery: Face to face, teacher-led instruction embedded into regular class routines (warm-ups, lab debriefs, station work, and exit tickets).

Instructional strategies:

• Mini-lessons (5-10 minutes) with explicit modeling/think-alouds and worked examples/non-examples.

• Guided practice with scaffolds (sentence stems, word banks, graphic organizer) that gradually fade as students gain independence.

• Peer review and short teacher conferences, followed by structured revision time using a checklist (Graham & Perin, 2007; Hattie & Timperley, 2007).

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| *Describe the types of instructional materials that may be appropriate for your instructional solution.* |
| • CER anchor chart and student checklist (what 'counts' for Claim, Evidence, Reasoning).<br><br>• 0–2 CER rubric with calibrated exemplars and non-examples.<br><br>• Graphic organizer, sentence stems, and academic vocabulary supports (printable and digital).<br><br>• Short slide deck or one-page mini-lesson script for modeling with real class data (tables/graphs).<br><br>• Practice prompts aligned to current 7th grade phenomena/labs and quick-feedback forms (two glows/one grow). |
| **Assessment** |
| *Explain how you will assess the target audience's mastery of the objectives.* |
| Formative assessment: quick checks (exit tickets), evidence selection tasks, and draft and revise cycles scored with the CER checklist/rubric; feedback is provided during conferences or peer review.<br><br>Summative assessment: a post-assessment CER prompt with a data source scored on the 0-2 rubric; growth is monitored by comparing baseline and post scores and tracking percent proficient (≥2). |
| **Rationale** |
| *Describe your rationale for the design decisions you made above. Explain how the various elements in your design document (e.g., objectives, assessment, content, instructional strategies) align. Speak to how the context of the organization informed your design decisions.* |
| This design is intentionally "small and repeatable" to fit within class time and address the highest leverage gap: selecting evidence and writing reasoning that explains scientific thinking.<br><br>Alignment rationale:<br><br>• Objectives target observable CER behaviors, and assessments use the same rubric language students practice with daily, increasing clarity and consistency of expectations. |

• Content and activities emphasize modeling, guided practice, and revision because these approaches improve adolescent writing performance (Graham & Perin, 2007).

• Feedback and revision are built into the routine because timely, actionable feedback supports learning and transfer (Hattie & Timperley, 2007).

• The CER framework provides a research-based structure for constructing scientific explanations and argumentation (McNeill & Krajcik, 2012).

Context considerations (in-class Chromebooks, varied home access, EB/SPED needs) informed the choice to keep materials printable, scaffolded, and usable in a standard class period.

## High-Level Alignment Table

Use the table below to capture your initial design plans and ensure alignment across (a) your objectives (minimum of two), (b) assessment, and (c) the content. Make sure to indicate the learning strategies that will inform the design of your content.

| Objective | Assessment | Content |
|---|---|---|
| *Example:*<br><br>*Homeowners will be able to reconnect the water supply lines to the new faucet, ensuring the connections are leak-free.* | *The homeowner will reconnect the water supply lines to a new kitchen faucet while being observed. The expert instructor/observer will verify with a checklist (instrument).* | • *Face-to-face instruction with video, as well as videos shared via smartphone.*<br>• *Hands-on practice.*<br>• *After a brief in-person introduction, step-by-step procedures will be outlined in text. A video of the full process will be shown on a laptop. The homeowner will then watch the first step of the video again, practice that step on a sample kitchen sink and faucet, then watch the second step of the video, practice that step, etc. until the full process of replacing a kitchen faucet is complete.*<br>• *The expert instructor/observer will be present to answer questions and provide guidance as required. The homeowner will be able to practice the procedural steps as many times as they would like over one week. They will also receive video links to watch at their leisure via their smartphone.*<br>• *Learning strategies*<br>  ○ *Gagne's nine events*<br>  ○ *Guided practice* |

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| | | ○ *Chunking*<br>○ *Repetition* |
| Students will label Claim, Evidence, and Reasoning in sample responses and identify evidence vs. opinion with at least 80% accuracy. | 10-item analysis task scored with an answer key (accuracy). Teacher reviews misconceptions and reteaches as needed. | Mini-lesson with exemplars/non-examples; guided practice labeling CER parts; quick retrieval practice.<br>Learning strategies: worked examples; chunking; feedback (Hattie & Timperley, 2007). |
| Students will select at least two accurate, relevant data points from a provided table/graph to support a claim. | Evidence-selection checklist on two practice prompts; teacher observes and scores relevance/accuracy. | Model how to cite data (numbers/observations) and explain what it shows; paired practice with data displays.<br>Learning strategies: modeling; guided practice; gradual release (Graham & Perin, 2007). |
| Students will write a complete CER explanation that earns a 2 (proficient) on the 0–2 CER rubric, including reasoning that links evidence to a science concept. | Post-assessment CER prompt scored with the 0–2 CER rubric; students submit a revised final after feedback. | Short routine: plan (graphic organizer) → draft → peer/teacher feedback → revise with checklist.<br>Learning strategies: scaffolded writing; feedback + revision (Hattie & Timperley, 2007); CER framework (McNeill & Krajcik, 2012). |

**References:**

Graham, S., & Perin, D. (2007). Writing next: Effective strategies to improve writing of adolescents in middle and high schools. Alliance for Excellent Education.

Hattie, J., & Timperley, H. (2007). The power of feedback. Review of Educational Research, 77(1), 81-112. https://doi.org/10.3102/003465430298487

McNeill, K. L., & Krajcik, J. (2012). Supporting grade 5-8 students in constructing explanations in science: The claim, evidence, and reasoning framework. Pearson.