The purpose of this guide is to help you choose the routine that most meets your students’ needs based on where they need support. This guide provides a brief description of each routine. For additional information, see <http://sim.kucrl.org/products>. Detailed information can be found in each routine’s guidebook. Routines are organized into categories based on purpose for use.

**Planning Routines**

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| --- | --- | --- | --- |
| **CER** | **Device** | **Purpose/ When Used** | **Impact** |
| Course Organizer Routine | Course Organizer (page 1)  Course Map (page 2) | To share the plan or “road map” for a course with students. It provides a method for students to measure their progress throughout the course. It previews the big questions and concepts that students will encounter.  At the beginning of a course and at the end/beginning of every unit. | With regular and consistent use, students with learning disabilities answered an average of eight “big idea” course questions correctly as compared to four out of 10.\*\* |
| Unit Organizer Routine | Unit Organizer Map (page 1)  Expanded Unit Map (page 2)  \*format of maps will vary based on content | To provide the critical information in a unit in a way that shows the relationships between the content. The Unit Questions provide students with a method of self-assessing their learning.  At the beginning of the Unit to frame the learning for students, throughout the unit to add information learned to the expanded map, at the end of the unit as a review tool. | With regular and consistent use, students scored an average of 15 points higher on unit tests.\*\* |

**Routines for understanding and applying concepts**

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| **CER** | **Device** | **Purpose/ When Used** | **Impact** |
| Concept Anchoring Routine | Anchoring Table | To help student construct an analogy between something they already understand and something new they are learning so they can better understand the new concept.  To introduce a new concept or after initial instruction on a concept. | Students answered a higher percentage of items correctly on tests when the routine was used in instruction (88% as compared to 69% average, 63% to 38% for students with an IEP.)\*\* |
| Concept Comparison Routine | Comparison Table    \*format may vary slightly based on the number of concepts to be compared | To analyze the characteristics of two or more important and related concepts, categorize the like and unlike characteristics, and develop a summary. To support comparison and contrast in applied settings.  After instruction on similar but important concepts. | Students without disabilities correctly answered an average of 23.8% more items correctly on tests and students with disabilities answered an average of 14.8 % more items correctly on tests.\*\* |
| Concept Mastery Routine | Concept Diagram | To help students identify the characteristics and examples of a critical concept. It is used to ensure every student has a deep understanding of a concept and the ability to apply it.  After initial instruction on a concept. | With regular and consistent use, students scored an average of 12 points higher on unit tests.\*\* |

**Routines for explaining (vocabulary, connected facts, processes)**

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| **CER** | **Device** | **Purpose/ When Used** | **Impact** |
| Clarifying Routine | Clarifying Table | To help students construct the meaning of an important term so that they can remember it to help address student misconceptions.  Throughout instruction as critical terms (vocabulary words, a person, a plan, an event, an object, or a time in history) are introduced. | Students answered a higher percentage of items correctly on tests when the routine was used in instruction (85% as compared to 63%).\*\* |
| Framing Routine | Frame  \*format may vary slightly based on the number of main ideas and essential details | A note-taking device that allows students to differentiate between main ideas and critical details on one page. It can also outline the steps of a required skill, scaffold higher order thinking tasks such as comparing and contrasting or summarize key points from multiple pages of notes.  Throughout instruction. | This routine effectively facilitates subject-matter learning and supports writing. Students wrote an average of 102 more words per product.\*\* |
| Vocabulary LINCing Routine | LINCs Table | To support students in remembering the definitions of key vocabulary.  Throughout instruction as critical terms (vocabulary words, a person, a plan, an event, an object, or a time in history) are reviewed. | Students answered a higher percentage of items correctly on tests when the routine was used in instruction (92% as compared to 84% average, 77% to 53% for students with an IEP.)\*\* |

**Routines for supporting higher order thinking**

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| **CER** | **Device** | **Purpose/ When Used** | **Impact** |
| Cause-and-Effect Routine | Cause-and-Effect Guide | To help students engage in thinking about a relationship in which one thing either leads to another or results from another  Before a unit test or during instruction throughout the unit. | Students in the experimental group significantly outperformed students in the control group and were better able to learn the strategic steps designed to analyze a cause-and-effect relationship, apply the steps as they analyzed a cause-and-effect relationship, and take better notes.\*\* |
| Question Exploration Routine | Question Exploration Guide  \*format may vary slightly (landscape vs. portrait) | To unpack critical questions of the course, performance tasks, or higher order questions with students and to support development of through written answers to complex questions.  Before a unit test or during instruction throughout the unit. | Students who were taught a lesson using QER earned an average test score of 70 percent, while traditionally taught students scored an average of 48 percent.\*\* |
| Scientific Argumentation Routine | Scientific Argumentation Guide  Cola 2015 AEG Cola 1.19.15docx copy 4.pdf | To support students in accepting, rejecting or withholding judgment about (arguing on) a claim based on the scientific evidence provided.  When students are reviewing evidence as part of instruction such as in preparation for writing or discussing the results of an experiment. | Students instructed with the Scientific Argumentation Routine performed significantly better (effect size of 1.7) when asked to identify the relevant information on and argue for or against a claim.\*\* |

**Routines for supporting higher order thinking, continued**

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| --- | --- | --- | --- |
| **CER** | **Device** | **Purpose/ When Used** | **Impact** |
| Teaching Cross-Curricular  Argumentation | Cross-Curricular Argumentation Guide    Version A    Version B | To support students in clarifying, analyzing, and evaluating arguments around a claim, then accepting, rejecting or withholding judgment based on the evidence and reasoning for it.  When students are reviewing evidence as part of instruction such as in preparation for writing or discussion. | Argumentation reasoning components and procedures of the routine have an extensive evidence and research base including published research on specific instructional graphics and procedures e.g., Scientific Argumentation (Bulgren, Ellis & Marquis, 2014), as well as overviews of a wide range of research on argumentation e.g., Driver, R., Newton, P., & Osborne, D. (2000);  Duschl, R.A., & Osborne, J. (2002); Linn, M.C., Clark, D., & Slotta, J.D. (2003). |
| Teaching Decision Making | Decision Making Guide | To support students in exploring, analyzing and evaluating an issue with multiple viewpoints, then choosing and defending an option.  In preparation for discussing or writing about the issue and the options. | Students in the experimental group significantly outperformed the control group in analyzing a content-based issue, applying the steps for a decision-making challenge, and improving critical thinking skills.\*\* |

**Tips for Administrators/Instructional Coaches visiting classrooms**

**For all Content Enhancement Routines**

What to watch for during instruction…

* Teacher and students call the device being used by name (Unit Organizer, Frame, etc.)
* Teacher and students know why they are using the device and how it will help them learn
* Teacher and students develop the device together (with the teacher using a previously drafted device to lead the discussion)
* Students know how to find different types of content on the device

Red Flags….

* Teachers hand out completed devices to students
* Blank devices are given to students to complete independently