CONCEPT-BASED LESSON PLANNING PROCESS GUIDE

Note: The shaded areas indicate the shifts from more traditional lesson planning to a concept-based instructional design and asks teachers to metacognitively reflect on their planning. The red cells and shading indicate the primary focus of our work at the Institute. **The process guide is to help make visible "the invisible thinking" in which teachers engage as they plan lessons**. The guide is not intended to suggest that templates in use by teachers or in districts should be replaced; in fact, the process guide may be a valuable tool when used "side-by-side" with other lesson planning templates or tools. The intention is to illustrate the type of questioning that should occur consistently with any planning process when considering the instructional shifts implicit in the Colorado Academic Standards.

Shift in Instructional Design	***Lesson Elements and Design***	***Metacognitive Reflection***
The Unit Generalization and Focusing Lens asks students to …	**Lesson Focus:** Generalizations: • The increasingly interdependent nature of human existence as well as the persisitent reality of uneven distribution of resources can create conflict and facilitate cooperation • Availability and access to natural and human resources necessitates economic choices/decisions which incur opportunity costs Fousing Lens: Sustainability Disciplinary Conections: Geography, Economics, Civics Engaging Question(s): • What is the appropriate balance between sustainability and economic development? • What *economic, environmental*, and *social* factors should be taken into account when building a dam? • What are the costs, benefits, and impacts of building this dam?	*How does this specific lesson advance the big idea or generalization of the unit? What connections might be made between other content areas?* The lesson advances the idea of sustainability by placing students in the real-world situation of weighing the costs/benefits of mega-dam projects. Ultimatlely they must decide between sustainability or economic development. Unit strands: Geography, Economics, Civics. Connections can be made to Earth Science
This lesson objective / learning target is critical to student understanding because…	**Objectives / Learning Targets:** **Students will be able to:** • Form and justify opinions on the effect mega-dams have on the ecosystem and economic development of a region • Analyze the costs/benefits of building mega-dams • Work collaboratively to research case studies in order to construct a persuasive argument either for or against building a mega-dam. Key knowledge: (critical content) • Hydroelectricity as a source of energy • Basic understanding of cost/benefits in economic terms • Basic geography surrounding the Nile, Yangtze, and Colorado River	*In what ways does the learning target support the generalization?* Generalization: economic choices/decisions = cost/benfit analysis Uneven distribution of resources create conflict = persuasive argument for or against building a mega-dam

	• Technology can support invention and influence how humans modify the environment in both positive and negative ways • The issues affecting the appropriate balance between sustainability and economic development • The location of resources, physical boundaries, and natural hazards that affect human interaction • The physical environment is modified by human activities, societal values, and natural resource use	
Instructional strategies	**Instructional Strategy Menu (not exhaustive):** • *Investigation/inquiry: Teacher-provided inquiry question that demand consideration of the problem from multiple persepctives* • *Hands-on/experiential: Priority Setting of costs/benefits using manipulatives* • *Data analysis: multiple maps and data sheetsas supports for analysis* • *Structured collaborative groups: Jigsaw and* • *Group decision: Learners share and defend-solutions publically* • *Case-study:Sscenario based on actual real-world situation*	*Which instructional strategies will foster learning the lesson's skills, processes, or content?* Real-world Problem-solving and Inquiry-based that centers learning on solving a problem and answering a central question.
In the first 3-7 minutes of the lesson,	***Opening (hook / anticipatory set / lesson launch)*** **Instructional Strategy chosen: Authentic Scenario "Letter of Invitation"** Students are provided the following scenario—"A number of megadams are in the planning stages of building along the Mekong River. Laos, Vietnam, Thailand and Cambodia make up the Mekong River Commission (MRC) and collectively have ordered a feasibility study of other mega-dams in order to understand the possible environmental and economic impacts for its planning purposes." A "Letter of Invitation" is delivered to students to tell them they will act as consultants for DHI, a Danish firm with expertise in large hydroelectric projects. **Why is this strategy impactful:** (*In what ways does this strategy move the learner toward meeting the learning target? How would this strategy ensure all students, with differentiated needs, could feel successful?)* **How does this strategy support meet " "creating relevancy?" This activity sets up a role-play where students take the role of a consultant and submit a well-thought out and justifiable recommendation**	*In what ways does the chosen strategy work toward a larger purpose at the beginning of the lesson (e.g., engaging students, increasing curiosity, stimulating student-generated questions, etc.)?* This strategy was chosen to engage students in a **relevant and meaningful** real-world problem. *In what ways does the chosen strategy(ies) work toward a larger purpose (e.g. increasing collaboration; interacting with complex texts; situating students in real-life, relevant experiences; increasing student agency; stimulating student discourse; etc.)?* 1. Jigsaw strategy increases collaboration and asks student to interact in a data analysis. 2. The lesson replicated a current real-world problem. After making their recommendation, students were able to learn the actual recommendation of the consultants. *In what ways does the chosen strategy cement the learning?*
The Learning Experience will	***Learning Experience / Lesson*** **Instructional Strategy chosen: Manipulatives: Prioritizing with cost/benefit cards** **Why is this strategy impactful:** This strategy allows a quick analysis of real-life costs and benefits of dams, and use it to make recommendations. **How does this strategy support meet** "fostering disciplinary literacy ?" Economics is the "science" of choice. Students had to make decisions about the trade-offs between sustainability and economic development.	

	Instructional Strategy chosen: Jigsaw/Collaborative groups • Expert groups • Jigsawgroups **Why is this strategy impactful:** (*In what ways does this strategy move the learner toward meeting the learning target? How would this strategy ensure all students, with differentiated needs, can feel successful?)* **How does this strategy support meeting the "building relationships," or "creating relevancy?"** Jigsaw/Collaborative groups and analysis of sources supports disciplinary literacy and creates relevancy. Students must use the vocabulary and language of a historian, geographer and economist through the sources selected and questions asked. Additionally, students engage in authentic, meaningful, realworld work of geographers.	*What evidence will show that the strategies impacted student learning? Were the strategies effective through the learning process?* The written evidence provided a record of student learning, however strategies such as collaborative grouping creates a classroom climate of trust and belonging.
The closing activity reinforces the learning.	***Closure*** **Instructional Strategy chosen:** Students will share their recommendations/responses to the Mekong River Commission and justify their reasons based on their resource packet and costbenefitanalysis. **Instructional Strategy chosen: Debrief: Think-table discussion-share** **Questions for debrief of the lesson**: • How did you come to your decision? • How did you evaluate the different costs and benefits? • What challenges will you still face as a result of your recommendations? **Why is this strategy impactful**: It allows students to engage in realworld role play to make critical recommendations **Why is this strategy impactful:** (*In what ways does this strategy move the learner toward meeting the learning target? How would this strategy ensure all students, with differentiated needs, could feel successful?)* *All students were involved because they worked in teams of six. Because of grouping students with less content background could work with other.* **How does this strategy support meeting the "creating relevancy," or "fostering disciplinary literacy"?** This strategy supports 'building relationships" because students must collectively evaluate costs and benefits in order to make decisions. This strategy also supports "creating relevancy" because it highlights reallife decisionmaking (with reallife implications) and how it impacts both the human and the environment. There was no one "right anwer." The justification based on data- analysis for their decision was more important than having the right answer.	

Technological resources that will support student learning and move students toward the learning target.	***Technological Resource and application:*** • Resources could be placed online instead of hard copies of the materials. • Extension activities (or for longer class periods) can include video images of dams, Google Earth for changes over time, and film regarding consequences of dambuilding.	*How will my students and I strategically use technology resources to enhance the learning experience (and support "meetingthe just-right challenge," "building relationships," "creating relevancy," and/or "fostering disciplinary literacy")?* • Technology resources can be placed online to support disciplinary literacy and cut down on the use of paper. • Visuals would enhance this lesson: videos and maps of the regions under investigation.
Formative assessment will be a quick Check for Understanding in which students will demonstrate they are or are not on track.	***Formative Assessment*** **Formative Assessment tool/method:** • CostBenefit Cards Activity • Debrief Questions: See Handout What was real about this process? What felt artificial about this learning event? If you were commissioned to make a dam recommendation, what else would you need to know? • Exit Ticket **Formal assessment:** Recommendation report from each group with explanation of decisionmaking to the River Commission. **Learning indicators of success:** Students will be able to identify costs and benefits.Students will be able to justify their decisionmaking.	*What "indicators of success" will show that the students are gaining mastery?* 1. Notes of the most important cost/benefits of their assigned dam. 2. Both written and verbal justification of their recommendation *How will I use that evidence in a feedback loop?* The feedback provides a check for understanding of the targeted concepts of the lesson.

Reflection: (What are the *strengths in the lesson plan? What changes would I make in the lesson plan for next time*?) **Strengths**: This is a truly authentic lesson based on a real-world problem. Students were interested in the outcome. **Changes**: The connection between the cost-benefit analysis and the analysis of the assigned dam was not clear. Should students return to the priorites they set for decision-making and revise as they move through the lesson?
Connection to Performance Goal: (*What did I do in this lesson that gives evidence or may be used as an artifact for my professional growth plan?)* Note-catcher for assigned dam Letter of Recommendation **to the MRC**
Student Feedback: (*What did students say about the lesson? Did they find it engaging, interesting, appropriately challenging? Did their feedback confirm my own perception of the the lesson?)* Yes, students found the lesson engaging, interesting, and apprpirately challenging. Yes, their feedback matched my perception of the lesson.

Time Suggested	It would be possible to complete the lesson in one 50-minute class period, but one block period would be preferable in order to fully debrief and reflect on the lesson.
Materials Needed	Sources: http://greenfieldgeography.wikispaces.com/IGCSE+Rivers+and+GCSE+Rivers (Greenfield IB Geography) http://www.learningtogive.org/units/waterresourcesandroleindependentsector/whathavewedone (What Have We Done?) http://greenfieldgeography.wikispaces.com/IGCSE+Rivers+and+GCSE+Rivers (Greenfield IB Geography Case Studies) Handouts : The Letter of Invitation Index Cards of Cost and Benefits Note-catcher Recommendation Letter Reflection/Debrief Mekong Under 'Very High' Threat: Vietnam http://thediplomat.com/2016/04/mekong-under-very-high-threat-vietnam
Co-teaching Opportunity	There is an opportunity to partner with an Earth Science teacher.
Cross-Content Connections	Earth Science Geography, Economics, Civics