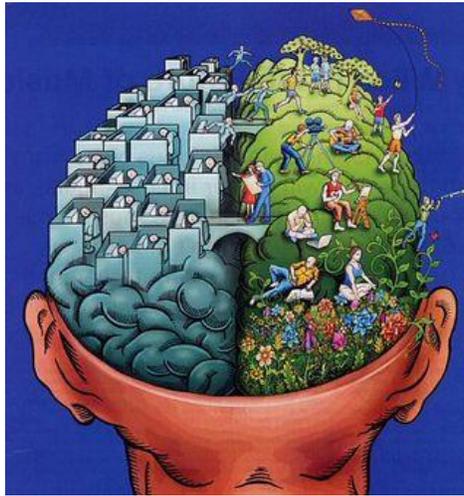


Designing a Problem/Case Based Learning Experience

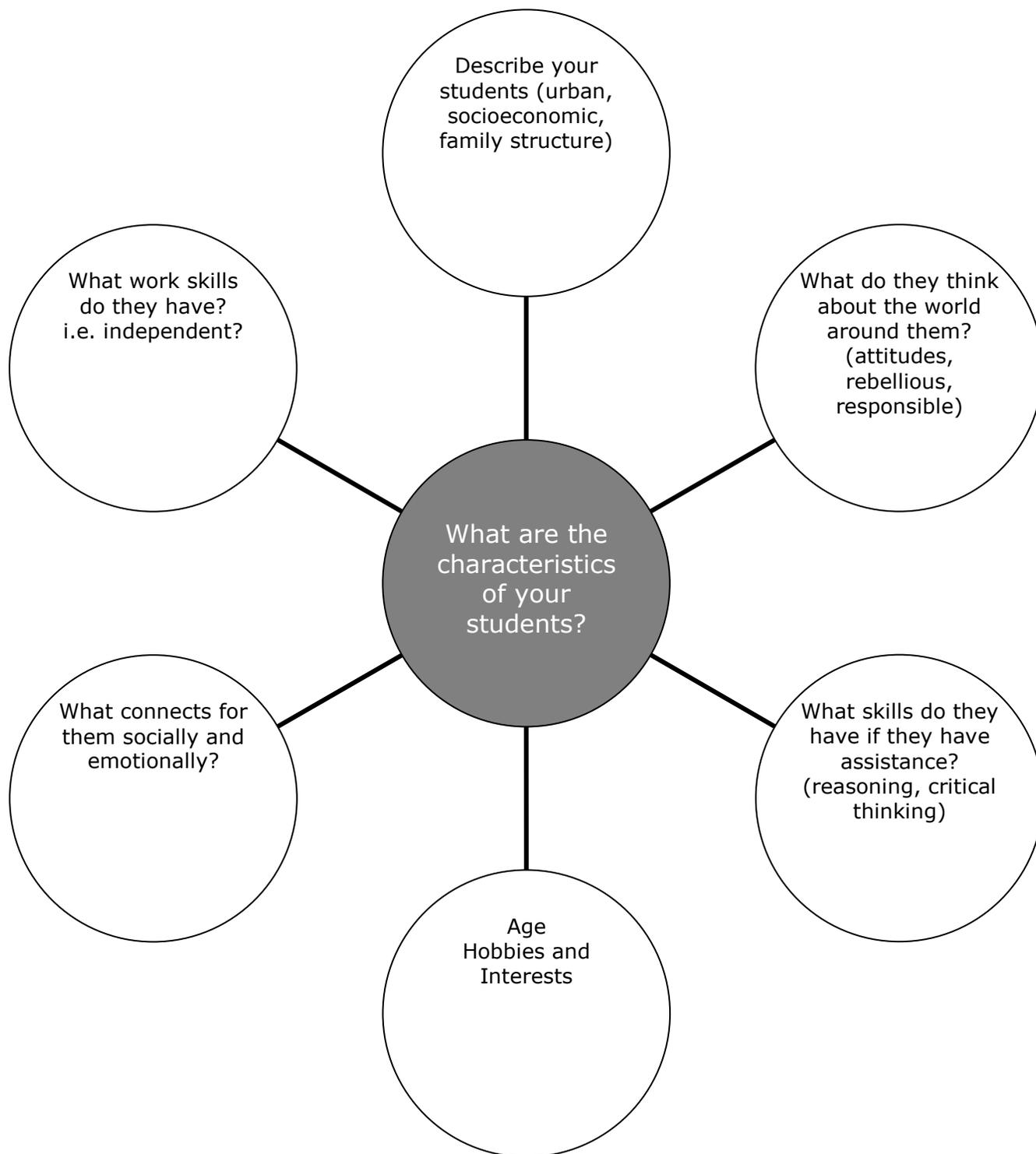


<http://michelemartin.typepad.com/.a/6a00d83451fd2469e2011570dd5da1970c-320wi>

The impact of using the PBL/Case Method of instruction in classrooms is not only one that inspires student engagement, it also leads students to develop critical thinking and process skills. Students demonstrate the ability to transfer knowledge and become independent in their desire to research scientific topics further. As a classroom teacher, you may even find that when you facilitate student learning in this way, there is no longer a need to assign homework. Students become inspired to learn on their own and return to class proud of what they have investigated at home. PBL/Case Study instruction provided an opportunity to create stories about topics that seemed abstract, yet through the Case Study they are connected to the students' lives. These stories help students understand that knowledge rarely exists in isolation. When Cases are presented; mathematics, literacy, science, technology and history often enter into the scenario and become integrated seamlessly into the learning process.

The process of writing a PBL/Case, although time consuming is also rewarding, especially as it plays out in an actual classroom. It is important to remember that this is a holistic approach with an eloquent balance and interrelationship among three parameters-your students in context, content from curriculum and resources. The PBL/Case method has the potential to excite and motivate your students so that you see them strive to achieve their true potential. The following pages are meant to help guide you through the PBL/Case writing process.

What do you know about your students?



THE HABITS OF MIND

(Costa and Kallick)

Resilient



Persistence

Stick to it! Persevering in task through to completion; remaining focussed. Looking for ways to reach your goal when stuck. Not giving up.



Striving for Accuracy

Check it again! Always doing your best. Setting high standards. Checking and finding ways to improve constantly.



Thinking and Communicating with Clarity and Precision

Be clear! Striving for accurate communication in both written and oral form; avoiding over generalizations, distortions, deletions and exaggerations.

Resourceful



Thinking Flexibly

Look at it another way! Being able to change perspectives, generate alternatives, consider options.



Questioning and Posing Problems

How do you know! Having a questioning attitude; knowing what data are needed and developing questioning strategies to produce those data. Finding problems to solve.



Creating, Imagining & Innovating

Try a different way! Generating new and novel ideas, fluency, originality.

Reasoning



Thinking about your Thinking: Metacognition

Know your knowing! Being aware of your own thoughts, strategies, feelings and actions and their effects on others.



Applying Past Knowledge

Use what you Learn! Accessing prior knowledge; transferring knowledge beyond the situation in which it was learned.



Gathering Data Through All Senses

Use your natural pathways! Pay attention to the world around you Gather data through all the senses. Taste, touch, smell, hearing and sight.

Reflective



Remaining Open to Continuous Learning

Learn from experiences! Having humility and pride when admitting we don't know; resisting complacency.



Responding With Wonderment and Awe

Have fun figuring it out! Finding the world awesome, mysterious and being intrigued with phenomena and beauty. Being passionate.



Finding Humour

Laugh a little! Finding the whimsical, incongruous and unexpected. Being able to laugh at oneself.

Responsible



Taking Responsible Risks

Venture out! Being adventurous; living on the edge of one's competence. Try new things constantly.



Managing Impulsivity

Take your Time! Thinking before acting; remaining calm, thoughtful and deliberative.



Listening with Empathy and Understanding

Understanding others! Devoting mental energy to another person's thoughts and ideas; make an effort to perceive another's point of view and emotions.

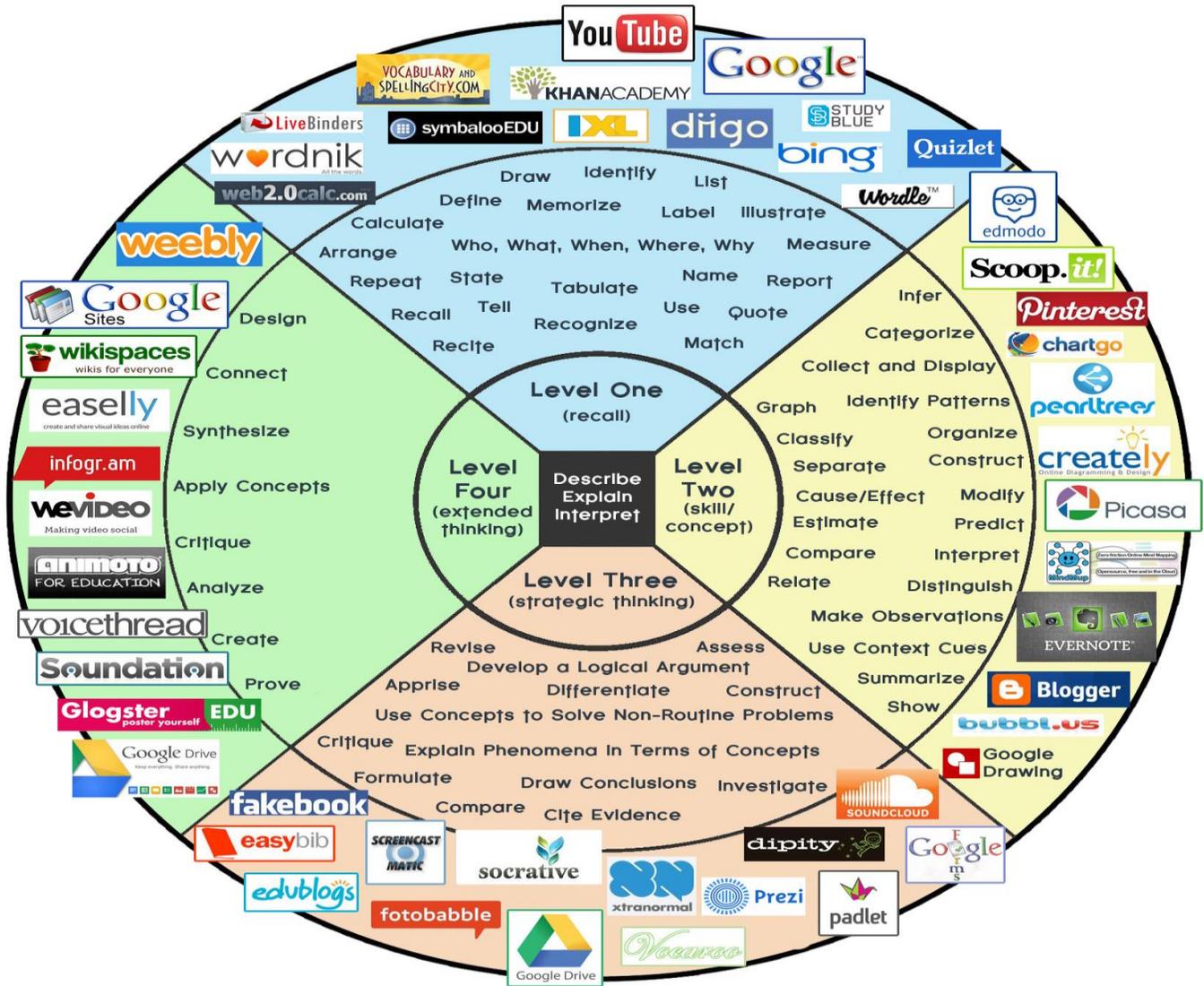


Thinking Interdependently

Work together! Being able to work in and learn from others in reciprocal situations. Team work.

<http://www.st-peters-exeter.devon.sch.uk/wp-content/uploads/2013/10/habits-of-mind-A2-landscape-2.jpg>

Webb's Depth of Knowledge & Web 2.0



| Level One Activities | Level Two Activities | Level Three Activities | Level Four Activities |
|--|--|---|--|
| <ul style="list-style-type: none"> Use <i>Quizlet</i> to recall elements and details of story structure, such as sequence of events, character, plot, and setting Conduct basic mathematical calculations using <i>web2.0calc</i> Label locations on a map in <i>Google Drive</i> Represent in words or diagrams a scientific concept or relationship Perform routine procedures like measuring length or using punctuation marks correctly Describe the features of a place or people | <ul style="list-style-type: none"> Identify and summarize the major events in a narrative Use context cues to identify the meanings of unfamiliar words Solve routine multiple-step problems Describe the cause/effect of a particular event Identify patterns in events or behaviors Formulate a routine problem given data and conditions Organize, represent, and interpret data | <ul style="list-style-type: none"> Support ideas with details and examples Use voice appropriate to the purpose and audience Identify research questions and design investigations for a scientific problem Develop a scientific model for a complex situation Determine the author's purpose and describe how it affects the interpretation of a reading selection Apply a concept in other contexts | <ul style="list-style-type: none"> Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data and reporting results/solutions Apply mathematical model to illuminate a problem or situation Analyze and synthesize information from multiple sources Describe and illustrate how common themes are found across texts from different cultures Design a mathematical model to inform and solve a practical or abstract situation |

Webb, Norman L. and others. "Web Alignment Tool" 24 July 2005. Wisconsin Center of Educational Research, University of Wisconsin-Madison. 2 Feb. 2006. <http://www.wcer.wisc.edu/WAT/index.aspx>

http://www.markrounds.com/apu-edtech/wp-content/uploads/2013/10/DOK_Chart-copy-copy.jpg

What will your students have accomplished by the end of the Problem/Case Based Learning Lesson?

List the big ideas that you would like students to understand after finishing the PBL (standards, curriculum topics)

What are the habits of mind and deeper levels of learning that you want students to develop from working on this PBL?

Topic:

Scenario 1:

Activity or Lab:

Scenario 2:

Identify the relevance of the topic and list real world problems or situations that are related. (Context: within school, community, or nation)

Describe the real world application or relevance of the problem/case that you are presenting to students

Mapping your Problem/Case Based Learning Lesson

Using a mind map to record your thinking about the connections among your topic, sub-topics and what you want your problem/case based lesson to accomplish can be very helpful. It can also allow you to visualize interrelated content that you never thought about before you started the process. There are different types of maps and they can actually be integrated in to one by using different colors or shapes to indicate how the parts of the mind map come together.

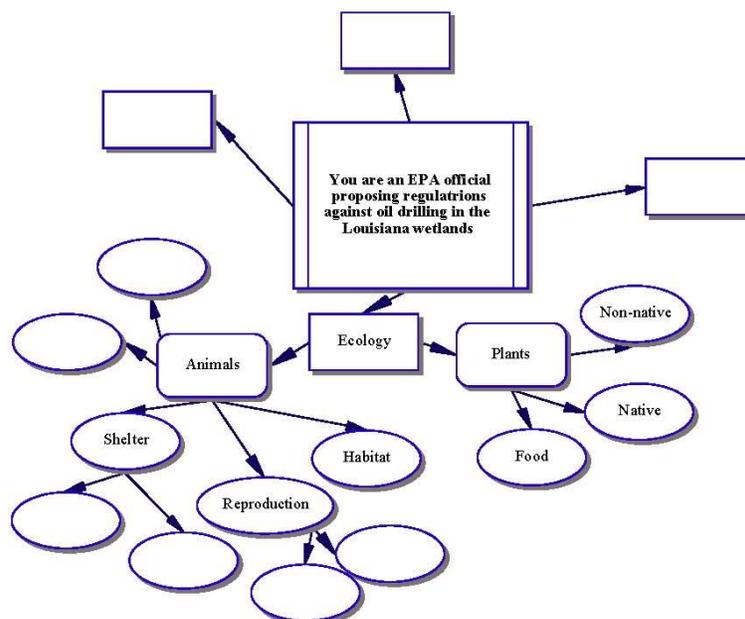
Examples of the types of maps that may help you expand your Case/Problem map are:

Content possibility map: looking at the different content topic may be linked to one Case/Problem; standards can be indicated on this map as well

Planning map: map the various components of the Case/Problem

Student map: students can map the problem to better understand connections

Example from the Louisiana Wetlands Problem:



PBLNetwork Collaborative Inquiry in Action: Illinois Math Science Academy PBL Tool Kit

What will the parts of my problem look like?
What is a problem?

1 a: a question raised for inquiry, consideration, or solution

2 a: an intricate unsettled question **b:** a source of perplexity, distress, or vexation
...Merriam-Webster's Online Dictionary

What is the situation that you are considering using for your problem?

What makes this situation a problem?

What steps will lead to progressive disclosure of the problem?

What possible roles could students assume?

What resources will you make available to students?

What are the possible hooks that could be used throughout the problem? (Remember: videos, scripts, discrepant events, news articles, letters, and scenarios)

What "elements" will you include in your PBL?

- Simple Progressive Disclosure (two part story)
- Discrepant Events

-
- Reading Comprehension Strategies

-
- Facts and Questions
 - A Lab or Activity (i.e. virtual fieldtrip)

-
- Simulation

-
- Differentiated Text
 - Culminating Activity

-
- Other(s) list:

What possible product(s) will you expect to use in order to assess students?

- Narrated Movie Using Movie Maker
- Publish an Educational Pamphlet
- Create a Web Site
- Complete a Test
- Complete a Rubric
- Research Report
- Develop a concept map
- Complete a project
- Engineer and design a solution
- Tests or quizzes
- Other(s) list:

How do I begin to write my scenario for my Case/Problem Based Learning Lesson?

- ✓ Your Case/Problem needs to be engaging and relevant to your students!
 - ✓ You need ideas, ideas, ideas!
YouTube
- ✓ Really boring lesson that needs relevance to students....Find the real world application!
 - ✓ Standards and the search for real world connections
 - ✓ Ask students
 - ✓ Current topics in the news
 - ✓ Stories from the past

Start Writing..... *And make your first one short!*

Part one: story or hook that can have interesting but not necessarily detailed content

How will the students demonstrate their curiosity and fact gathering from Part 1?

i.e. facts/questions; brain dump, carousel, discussion

Activity: Research article, film, animation, lab....*and the list goes on*
You will want this to relate to part one in order to give students more infor

A large, empty rounded rectangular box with a thin black border, occupying the central portion of the page. It is intended for students to write their responses or activity details.

Part two: continue your story or but now add more content detail and structure. This part of the story can lead to more activities, an open ended project or inquiry experience.

A large, empty rounded rectangular box with a thin black border, intended for writing the second part of a story or project. The box is centered on the page and occupies most of the vertical space below the instructions.

mation to build upon.