So you want to use PBL…

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The Basics
PBL vs. ICBL

- **PBL = problem based learning**
  - Learner centered
  - Teacher responsible for some materials and guidance
  - Develops content knowledge and problem solving skills

- **ICBL = investigative case based learning**
  - Still learner centered
  - Much more independent; student responsible for materials

Use of PBL/ICBL

- In place in classrooms ranging across all ages, learning environments, and disciplines
- Originated in medical schools to teach students how to handle real-world clinical cases in a problem-solving based manner
- Becoming more widespread every day!
What is currently being used?

- Many resources on the Internet that cover a wide range of PBL based cases, scenarios, implementation plans, tips, tricks, and techniques for writing and developing cases, assessments, etc. etc.
- Clearning houses of cases so that cases can be modified for each individual class being taught

Role of teacher/student

- **TEACHERS:**
  - As facilitator!
  - Coach!
  - Help explore the reasoning process
  - Managed group dynamics

- **STUDENTS**
  - Active learners
  - Engaged in the classroom
  - Students can become teachers in their groups
Where is PBL used?

- Across all kinds of disciplines
- Can be an approach to integrate disciplines (history and science, etc)

PBL vs. Didactic learning

- **PBL PROS**
  - Great for student interaction
  - Tackles other learning styles
  - Gain new perspectives on material
  - Critical thinking!!
  - Science as a process
  - Small groups
  - The need to know – questions are often student driven

- **PBL CONS**
  - TIME consuming to prepare for classes
  - Issues with covering required materials
  - Assessments are potentially difficult to grade
  - Costs
PBL vs. Didactic leaning, CONT.

LECTURE PROS
- Cover all the material
- Material may already be well prepared before class
- Students are used to and expect lectures

LECTURE CONS
- Boring at times!
- Less interactive
- Less opportunity to develop skills useful outside of the classroom
- Large class
- Less questioning

Case specifics
Resources

- Many internet resources about PBL and specific topics
- Experts in the field (other teachers, university faculty, companies)
- Libraries, textbooks
- Real world situations – a local polluted stream
- Laboratory equipment

WebQuests

- Directed learning, focused on a particular set of resources and topics
- Good way to introduce the concept of investigative learning scenarios
- Good way to get students used to evaluating internet resources
Case implementation

- Scene based
- Small break-out groups
- Question, identify issues
- Research the issues and questions
- Create a hypothesis for the situation
- Conduct an experiment or further research to support or refute the hypothesis
- Further thinking – other issues raised, future experiments and directions, how are these skills applicable to other situations?

Assessment

- Authentic assessment – portfolio based; collection of student work from the entire semester or year
- Showing progress and changes in learning over a period of time
- Debates, posters, journal clubs, article presentations – justify the type of work that you’re doing – why, how, importance!
- Integrate projects with traditional assessment methods
Caveats… for the skeptic in you

Issues surrounding PBL

- How realistic is it in your given classroom setting?
  - Assess your environment, resources, students – how do they learn, what is available to you?
- How accepting are the teachers when it comes to a new type of teaching?
  - Workshops, programs, forums addressing questions, concerns, issues surrounding the implementation of PBL
Issues surrounding PBL, cont.

- How do you address the resistant student?
  - Cases that are relevant to real-life, every day situations
- How do you ensure coverage of materials that are critical for year-end tests?
  - Integration of PBL cases into the traditional, lecture-based curriculum

What do students think?

- Evaluations of cases – likes, dislikes
- Students report which objectives they missed and why they felt that was the case
- Students evaluate each other
Bob graduates…

…now what?

- Can Bob solve a problem?
- Will Bob get a job?
- What kind of job will Bob get?
- What does he know – how he got to the end result, or just that he got the result?
- Can he explain his thought process?
YES!

- Bob has gained valuable critical thinking skills
- He is able to convey his thought processes to his colleagues
- He is open to different researching techniques to find answers, so he is not dependent on someone else for content
- He think outside the box by posing atypical questions