13 Amazing Digital Math resources
Blogs!
CIMS Industrial Mathematics Projects For High School Students - The WPI Industrial Mathematics Project for High School Students developed over twenty industrial mathematics projects for high school students. Best of all these were drawn from a variety of real-world situations. These engaging projects are available for every level of high school mathematics, from Algebra to Calculus and Statistics. The length and scope of these projects is very flexible. Each project contains enough material for a major, semester-long endeavor, but its component parts can be used in a shorter project or for scaffolding activities. Explore the project database which contains downloadable versions of each of the projects, ready to be assigned to students.
TEDed Math - The TED-Ed commitment to creating lessons worth sharing is an extension of TED’s mission of spreading great ideas. Within the growing TED-Ed video library, one can find carefully curated educational videos, many of which represent collaborations between talented educators and animators. This platform also allows users to take any useful educational video, not just TED’s, and easily create a customized lesson around the video. This link brings you to some amazing Math lessons that can be used for a footprint of a PBL Unit of a scaffold activity.
Real World Math – This site contains a collection of free math activities for Google Earth designed for students and educators. There are some outstanding connections to PBL! As you know, mathematics is much more than a set of problems in a textbook. Students will find that in the virtual world of Google Earth, concepts and challenges can be presented in a meaningful way. While this link will take you to the PBL section be sure to explore other areas of the site that can be used as you scaffold existing PBL units.
Intel PBL – Intel stresses that PBL puts assessment and content standards at the forefront of learning. It is with projects that students can be engaged in authentic work and develop 21st-century skills of collaboration, problem solving and critical thinking. A well-designed, project-based curriculum can yield high quality results for students and a rewarding experience for teachers. The provided link opens the door to some great Math projects from Intel.
Teach 21 – This resource rich site was designed by teachers to assist colleagues in planning and delivering effective 21st century instruction in West Virginia. While it enables educators to quickly access 21st Century Content Standards, Learning Skills and Technology Tools for WV Schools the provided link indexes the Math PBL projects for grades 3 -12. There are over 50 potential projects to explore!
Annenberg Learner Math Lessons – Annenberg Learner uses media and telecommunications to advance excellent teaching in American schools. This mandate is carried out chiefly by the funding and broad distribution of educational video programs with coordinated Web and print materials for the professional development of K-12 teachers. The math lessons could be a footprint to a PBL unit or scaffolding for an entire PBL. While at the site... take a look at the interactives.
**Mathalicious** – While this is a paid site you will find several free projects on the homepage. Perhaps you will find that the paid lessons are really well worth it! This site does demonstrate that math is about more than just numbers and equations. Students find that math is a tool to explore the world around us. Mathalicious provides teachers with lessons that help them teach math in a way that engages their students—in a way that helps students understand how the world works. Lessons are aligned to Common Core Standards and explore real life questions.
Get The Math –
An amazing site that combines video and web interactivity to help middle and high school students develop algebraic thinking skills for solving real-world problems. Lessons can be made that draw on conventions of popular reality TV shows. The video segments begin with profiles of young professionals, who then pose challenges connected to their jobs to two teams of teens. Students are encouraged to try the challenges themselves using interactive tools provided on the Get the Math website. This can be the start of some PBL of PrBl. After their best attempt, students return to the video to see the teams’ solutions. To expand learning, students can further explore the same, as well as extended algebraic concepts through additional interactive challenges on the website.
**Plus Magazine** – That is right... it is a magazine. Another plus... it is free. Most important it is all about the world of Math. This is a wonderful resource that will bring the authentic world of math to your students. Stories and activities can be a scaffold in a PBL Unit or possibly the catalyst for an entire project. You will find that *Plus* provides articles and podcasts many areas of mathematics. These topics include but are not limited to art, medicine, cosmology and sport. Be sure to visit the news section, showing how recent news stories were often based on some underlying piece of math. You can also check out reviews of popular maths books, and puzzles that will help to sharpen your students, and your wit. There is also a regular interview with someone in a math-related career. In these interviews students are shown the wide range of uses of math in the real world. Listen to a podcast that will open up real world math or read one of the new Ebooks! Last, for those real PBL enthusiasts you just might discover the basis for an entire unit in the area called packages. In fact, you will find this online magazine to be a wonderful collection of packages just waiting for you and your students to open.
NRICH – The slogan of this site is “Enriching Mathematics” As one tours the site it is evident that math can be rich! The aim of NRICH is to focus on the problem solving aspect of math. In the PBL world this could be construed as PrBL (Problem Based Learning). This difference can be discussed in a future article. In short... PrBL is shorter and may not contain all of the 8 elements of PBL. It can be turned into a full PBL or could be a scaffolding piece in a PBL. The belief of teaching Math using problem solving and inquiry is stated by NRICH in the following: Our activities can provoke mathematical thinking. Students can learn by exploring, noticing and discussing. This can lead to conjecturing, explaining, generalizing, convincing and proof. In a classroom, the students’ role is to focus on the mathematics while the teacher focuses on the learners. The teacher should aim to do for students only what they cannot yet do for themselves. It is especially exciting to see that last statement, allowing students to own their learning. All of the materials is built into age appropriate categories. It is certain that exploration at NRICH will lead on a path to some wonderful math richness! Enjoy the journey to a real home of rich
BBC Bitesize Math – OK... this may not have full scale PBL in its design, but there are some amazing scaffolding activities that will fit into a PBL unit. Add in the opportunity for some formative assessment, and you have an outstanding math site for educators. Explore this provided content:

**Algebra**: Formula and equations, inequalities, graphs, quadratic equations, sequence

**Statistics and probability**: Collecting data, averages, representing data, probability

**Number**: Number, fractions, decimals and ratios, factors, powers and roots

**Geometry and measures**: Shapes, coordinates, transformations and vectors, calculating lengths, areas and angles, measurements

Please note that you will find activities for all age groups. Perhaps you wish to start at the Activity Page. You are sure to find some great Math resources and be sure to incorporate them as part of your Project Based Learning in Math!
Mathematics, Learning, and Web 2.0 – You may not have noticed but the last four resources have come from the UK. I really don’t want to switch countries or continents so I will conclude this post with an amazing Math Blog from the UK; “Mathematics, Learning, and Web 2.0” is written by Colleen Young. Her posts provide thoughts and ideas in a very math practical manner. It is a wonderful blog that will allow any math teacher to dream up a new PBL, or scaffold an activity inside an existing project!. Not only that... it is just wonderful reading... so enjoy!