**Practitioner Wisdom Practice – The Hot Air Balloon Project**

The Hot Air Balloon Project, an interdisciplinary activity, involves students of varying ability levels in five curricular areas: physics, technology, math, history and communications in a fun, exciting hands-on learning project. Fundamental principles of flight and design are presented in a cross-curricular, integrated, contextual approach that provides for students success in linking classroom theory and real-life application.

This project helps teachers better understand how to create and administer an interdisciplinary project that integrates the curriculum of math, science, history, technology and media; shows students a link between classroom theory and practical application; and motivates students to develop investigative skills, stimulate their curiosity, strengthen their problem-solving abilities and build confidence in communicating their discoveries.

[Download Project Overview](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Practitioner_Wisdom_MARCH_2010.pdf)

Listen to the [companion podcast](http://nrccte.podbean.com/2010/02/22/practitioner-wisdom-series-hot-air-balloon-project-a-podcast-with-robert-predl/) ([transcript](http://136.165.122.102/UserFiles/File/podcast_transcripts/PracWisdom_RobertPredl_transcript.pdf) – PDF).

**Related Instructional Materials:**

[Aerostatic Design Principles for Paper Hot Air Balloons](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Aerostatic_Design_Principles_for_Paper_Hot_Air_Balloons.doc) (.doc)

[Box Balloon](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Box_Balloon.doc) (.doc)

[Build Your Own Hot Air Balloon](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Build_Your_Own_Hot_Air_Balloon.doc) (.doc)

[Building and Flying Paper Hot Air Balloons](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Building_and_Flying_Paper_Hot_Air_Balloons.doc) (.doc)

[Building Your Own Hot Air Balloon](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Building_your_own_Hot_Air_Balloon.doc) (.doc)

[Density Assessment](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Density_Assessment.doc) (.doc)

[Density Experiment](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Density_Experiment.doc) (.doc)

[Density Practice](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Density_Practice.doc) (.doc)

[Density Research](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Density_Research.doc) (.doc)

[Density Rubric](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Density_Rubric.doc) (.doc)

[Density Student PowerPoint](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Density_Student_PowerPoint.ppt) (.ppt)

[How Stuff Works](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/How_Stuff_Works.doc) (.doc)

[How to Calculate the Weight of Air and Model Hot Air Balloon](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/How_to_Calculate_the_Weight_of_Air_and_Model_Hot_Air_Balloon.doc) (.doc)

[Launcher](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/LAUNCHER.doc)

[Plans for Building Model Hot Air Balloons - Links](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Plans_for_Building_Model_Hot_Air_Balloons_Links.doc) (.doc)

[The Question](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/The_Question.doc) (.doc)

[Volume Calculations for Cylinder Shaped](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Volume_Calculations_for_Cylinder_Shaped.doc) (.doc)

[Hot Air Balloon Project - All Files](http://136.165.122.102/UserFiles/File/Promising_Practitioner/Balloon/Hot_Air_Balloon_Project.zip) (.zip)

**Related Reports:**

NRCCTE Curriculum Integration Workgroup. (2010, March). Capitalizing on context: Curriculum integration in career and technical education. Louisville, KY: National Research Center for Career and Technical Education, University of Louisville. ([**PDF**](http://136.165.122.102/UserFiles/File/Tech_Reports/NRCCTE_Curriculum_WEB_READY.pdf))

Stone, J. R., III, Alfeld, C., Pearson, D., Lewis, M., & Jensen, S. (2007). *Rigor and relevance: A model of enhanced math learning in career and technical education*. St. Paul, MN: National Research Center for Career and Technical Education. ([PDF](http://136.165.122.102/UserFiles/File/Math-in-CTE/Rigor_and_relevance.pdf))

Lewis, M. V., & Pearson, D. (2007). *Sustaining the impact: Follow-up of teachers who participated in the Math-in-CTE study.* St. Paul, MN: National Research Center for Career and Technical Education. [(PDF)](http://136.165.122.102/UserFiles/File/pubs/Sustaining_the_Impact.pdf)  
  
Stone, J. R., III, Alfeld, C. Pearson, D., Lewis, M. V., & Jensen, S. (2006). *Building academic skills in context: Testing the value of enhanced math learning in CTE* (Final study). St. Paul, MN: National Research Center for Career and Technical Education. [(PDF)](http://136.165.122.102/UserFiles/File/Math-in-CTE/MathLearningFinalStudy.pdf)   
  
Stone, J. R., III, Alfeld, C. Pearson, D., Lewis, M. V., & Jensen, S. (2005). *Building academic skills in context: Testing the value of enhanced math learning in CTE* (Pilot study). St. Paul, MN: National Research Center for Career and Technical Education. [(PDF)](http://136.165.122.102/UserFiles/File/Math-in-CTE/MathLearningPilotStudy.pdf)

**Related Multimedia:**

**Maximizing the Academics in CTE: The NRCCTE Curriculum Integration Studies (**[video](http://louisville.edu/television/NRCCTE/NRCCTE_Curriculum_Integration.asx)**; closed captioned)**

**An Introduction to the Math-in-CTE Curriculum Integration Model** ([video](http://louisville.edu/television/NRCCTE/NRCCTE_Math-in-CTE.asx)**; closed captioned)**

**Math-in-CTE at the Arlington Career Center, Arlington Public Schools (**[video](http://louisville.edu/television/NRCCTE/NRCCTE.arlington.asx)**; closed captioned)**

**Math-in-CTE Sample Lesson: Information Technology (**[video](http://louisville.edu/television/NRCCTE/NRCCTE.IT.asx)**; closed captioned)**

**Math-in-CTE Sample Lesson: Aircraft Weight and Balance** **(**[video](http://louisville.edu/television/NRCCTE/NRCCTE.aviation.asx)**; closed captioned)**

**Math-in-CTE Video Series Webinar** **(**[video](https://careertechedevents.webex.com/careertechedevents/lsr.php?AT=pb&SP=EC&rID=5037787&rKey=8073c951b1b6517d)**; closed captioned)**