LifePractice

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Foundations Card

Each card is categorized by one of the following project types, where students get to practice being different professionals.

Time Travelers

Artists & Inventors

Historian Challenges

Story Tellers

Problem Solvers

Scientist Challenges

Career& TechEd

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Foundations Card

- These "recipe cards" for Project/Problem Based Learning are intended for teachers to use with K12 students in groups, as well as individual students.
- Each card creates student learning categorized as TimeTravelers, Artists & Inventors, Historian Challenges, StoryTellers, ProblemSolvers, Scientist Challenges, Career & Tech Ed.
- The cards are meant to help teachers integrate core content and deeply embed creativity, problem-solving, and collaborative learning in each student, with or without the use of technology tools.
- The core content pieces are the basic ingredients with which teachers can cook delicious content for their hungry learners.
- Teachers are able to customize the driving questions in each of the content areas to fit the unique needs of their learners.
- The cards guide teachers through the basic steps of the project, with ideas and suggestions for best practice.
- The tips & tricks help establish a safe and respectful learning environment every single day of the year.

Additional information can be found at
www.LifePracticePBL.org

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DRIVING QUESTIONS

SS Who were the Vikings? Where did they live, travel? What was their lifestyle? How did the Vikings change history? What were their greatest accomplishments and contributions? How do we know these things? What happened to their culture? What are the stereotypes? What are the myths? Did they have art? Were the women as fearsome as the men or is that all false?

Sci What did the Vikings eat? What resources for everyday life did they have at their fingertips? Did their resources pack well? How did the Vikings adapt to their various environment(s)? How was this to their advantage against their enemies? How is this similar to animal adaptations?

M At what scale can we build a ship that's similar to the Viking ship, Oseberg? 1:6? 1:4? 1:10? What are the dimensions we need to have in order to have the wood shaped realistically? Considering ocean currents and the time of year they traveled, how far could they go using only human power and current technology? Knowing what we know now, but using only the tools of the Vikings, how could that be improved?

Rdg Research primary resources via Virtual field trips to:
museums with Viking artifacts;
colony sites in Europe and North America

Wri Journal a "Day in the Life" of a Viking. You choose the location and timing. Include as many direct ties to authentic vocabulary, writing, and artifacts as you can. Create museum descriptions and guidebooks as visitors view your re-created Viking Ship.

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VIKING SHIP

Create a scale-model Viking ship as you learn beyond the slash and burn archetype of this complex civilization.

Historian Challenge

VIKING SHIP

a step-by-step guide

LifePracticePBL.org

Before-project prep

Gather 2-3 large refrigerator boxes or 2 bunches of fanfold blue-core flexible insulation, as well as duct tape and other "junk" that could be used as construction materials. Be sure parents are informed of project scope and learning involved. Ensure all educators are clear with timeline and end results expected.

Launching the project

Start with a "bang," telling a brief account of the Kensington Runestone (Minnesota) mystery. Leave out some details, but ask a lot of questions about Vikings and their lifestyle. All involved educators are visibly positive and supporting the mystery of the Kensington Runestone. Introduce potential work teams and ask students to self-select teams, based on topics of interest (Builders, Artifacts, Museum Curators, CSI, etc) OR assign team members. Students document the entire process.

During the project maintenance

Students will first research, collecting properly cited information into collaborative documents. Teachers ask driving questions only; students delve deeper into their own questions. Each team makes a plan, a timeline for completion, a materials needed list, a materials substitution list, and leaders will begin to emerge. Teachers actively encourage, & admire with a hands-off, question-only approach. Teachers' # 1 role is to keep the sense of urgency for completion and mystery surrounding the Kensington Runestone.

Ending the project

Take pictures of students and teams with their work and pictures, showing proud faces. Evaluation: students share their learning, focusing on the learning and skills building and not simply what they did. Share results with local media.

tips & tricks

- As a way to role model time management in an active environment, Soft and Hard Deadlines are useful. Figure a time far enough before the final deadline for students to have a nearly-finished draft completed and allow them to present the unfinished work. Peers will provide wows/hows/bows for the work so far. This allows students to take peer ideas back to the studio for more refinement for a higher-quality final deliverable.

- Nothing is more important than the moment of introduction for a new project. It's all hands-on deck with every participating teacher showing excitement and helping to create a sense of urgency to the project.
- Let students have a good deal of free-choice in how they choose to contribute to the final deliverable.

- Don't squash a far-out idea. Get those kids to brainstorm and create a proposal for the leaders to buy into. Help them find a way to explain their thoughts and learn how to be persuasive. You never know if this is the piece that's the key to the solution. This is easier said than done.

DRIVING QUESTIONS

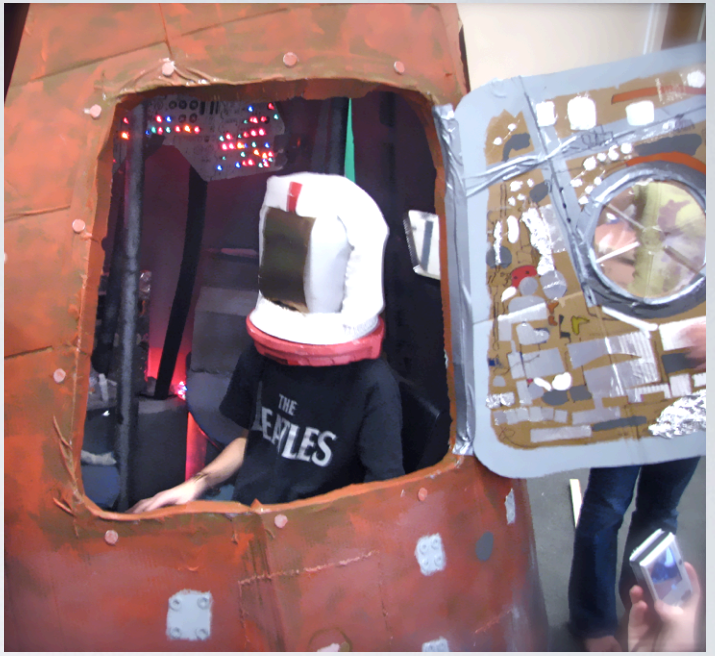
SS Why does this mission take a backseat in press coverage, as compared to other missions to the moon?What was the Space Race and how did it start? How did it push the Cold War forward? Or was it just a way to release nuclear tensions? How does a historian display artifacts of history? How does a museum tell the story of historical events? What artifacts can we re-create to tell the story of the Apollo 13?

Sci Research the chain of events that caused the mission's ultimate failure. How was the ground crew able to support the astronauts? How does one "scrub" C02 out of the air? Why did O2 tanks need tilting? How do space scientists use gravitational pull of planet to sling space craft to faster speeds? Isn't the atmosphere thin and just air? How could it "bounce" a spacecraft, sending it hurtling off to certain death? What is the proper angle of approach? How can traveling through air burn up a spacecraft/meteor? Isn't it colder the higher you go up?

M Use math to explain angle of entry into the earth's atmosphere. What are the measurements of the original Apollo13 capsule and how can we scale it down? What angle do the sides slope? What's the diameter of the top and bottom? How far away is the moon from Earth? Is it always this distance away? How fast did these missions get there? How does that compare to speeds of the space shuttles? At these rates, how long would it take to get to the Sun? to Mars? to Neptune? to the nearest galaxy?

Rdg Read all (or sections of) Apollo 13: Lost Moon by Apollo 13 Commander, Jim Lovell, or other appropriate astronaut biographies. Research primary source documents from NASA for data & capsule blueprints

Wri Create a website to document the building of the Apollo13. Collect interviews from your scientists, mathematicians, museum curators, etc.



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APOLLO 13

Create a scale-model of the Apollo 13 command module

"Failure is not an option."

Historian Challenge

APOLLO 13

a step-by-step guide

LifePracticePBL.org

Before-project prep

Gather 2-3 large refrigerator boxes, aluminum/plastic take-out dinner boxes, and other "junk" that could be used as construction materials. Identify standards and expectations for science, math, history, ELA content. Be sure parents are informed of project scope and learning involved. Ensure all educators are clear with timeline and end results expected.

Launching the project

Start with a "bang," telling a brief recount of the Apollo 13 space mission. Leave out a LOT of details, but enough to give the picture these astronauts were in mortal peril unless the team was able to problem-solve across a greater distance than ever before. All involved educators are visibly positive and supporting the suspense of the mission. Introduce potential work teams and ask students to self-select teams, based on topics of interest (CSI, Artifact, Build Team, Museum Curators, etc) OR assign team members. Then begin research. Students document the entire process.

During the project maintenance

Students will research first, collecting properly cited information into collaborative documents. Each team will make a plan, a timeline for completion, a materials needed list, a materials substitution list, and leaders will begin to emerge. Teachers are actively encouraging, and admiring with a hands-off, question-only approach. Teachers' #1 role is to keep the sense of urgency at the forefront of the mission.

Ending the project

Take pictures of students and teams with their work and pictures, showing proud faces. Evaluation: students share their learning, focusing on the learning and skills building and not simply what they did. Share results with local media.

tips & tricks

- Students must use quality triangulation of primary documents and other reliable data in their research. Be sure students cite their quality sources so others don't question the validity of their work.

- As a way to role model time management in an active environment, Soft & Hard Deadlines are useful. Figure a time far enough before the final deadline for students to have a nearly-finished draft completed and allow them to present the unfinished work. Peers will provide wows/hows/bows for the work so far. This allows students to take peer ideas back to the studio for more refinement for a higher-quality final deliverable.

- Shared reflection on quality of work is a valuable metacognitive skill, but students need to learn this skill in a safe environment. "Wows, Hows, and Bows" are a great way for peers to share feedback, learning to give positive feedback before gently questioning about how/why a deliverable was designed and implemented. Then at the end, students are always recognized for their willingness to share the the learning process with others.