

Integrated Project-based Learning: Combining PTE Standards and Academic Standards

Use this template for planning and sharing ideas for projects. This template is based on the 6 A's:

Authenticity Academic Rigor* Applied Learning* Active Exploration* Adult Connections* Assessment*

Project

Title of Project	Math in Your Drawers
Project Developed by	Shannon Brown/Kent Chandler
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School	Minico
Pathway / Small Learning Community/Academy	Architectural/Construction
Course Title(s)	Cabinetmaking
Time Frame	1-3 days

Authenticity

Briefly describe your project. Include the key question and provide an overview of what students do and learn. Tell why the question is meaningful to the students and where one might see a similar question tackled by an adult in the workplace.

Key Question	Is math used in building drawers?
Overview	As cabinetmaking students design drawers for their cabinet they are given a worksheet that is a Math story problem to come up with the measurements for their drawer.

Vocabulary/Key Terms

List vocabulary words and key terms essential to student understanding.

- Drawer sides**
- Drawer bottom**
- Drawer slides**
- Dado**
- Rabbet**
- Groove**

Vocabulary/Key Terms

Overlay drawers

Flush mount drawers

Guides

Active Exploration * Applied Learning * Adult Connections

What classroom-based, community-based, and career-based activities does the project involve? Include a description of the active exploration, applied learning, and adult connections in the project (as needed).

Active Exploration *How does the project engage students in real investigations using a variety of methods, media and sources? What field-based work will students perform? How does student learning and service support active career exploration? Students will examine real models of homes. Math will explain scaled units in architecture. They will have lessons on home construction and the building codes for bids. How knowledge is used in industry?*

Applied Learning *How do students apply what they have learned and researched to a complex problem (e.g. designing a product, improving a system, creating an exhibit, organizing an event)? Lecture on industry usage of this concept i.e. model designs. Application with their own proportions also will be explored along with industry standards.*

Adult Connections *Who from the community, workplace, postsecondary and/or industry partnership works with students on the project? Lecture from local industry and community in home design.*

Classroom Activities

During the design process of a project students will fill out a drawer sheet.

In cooperating math classes students will use the worksheets as a story problem assignment.

Community Activities

Research will be done at local and national cabinet shops to see how they calculate measurements for their doors and drawers.

Career Activities

This is an assignment that ties directly into industry.

Academic/PTE Rigor

Standards *Use the space below to list the state content standards and PTE industry standards addressed by the project. (A list of the content standards is available at <http://www.sde.idaho.gov/ContentStandards/default.asp>. This page, which includes selected high school level standards, is designed to let you easily create a list of standards you are addressing. You may then copy and paste the list into this template.)*

Academic/PTE Rigor

10.M.2.3.1 Use customary and metric units and their relationship to one another and to real world applications involving length, area, capacity, weight, time, and temperature. (349.04.a)

10.M.3.1.1 Represent mathematical relationships using variables, expressions, linear equations and inequalities. (350.01.a)

10.M.2.4.2 Approximate error in measurement situations.

CL:

Calc:

Content Limit: Assessed in the classroom, not on the ISAT.

School to Career Competencies Please check (x) the competencies addressed by the project

Communicate and understand ideas and information

Collect, analyze and organize information

Identify and solve problems

Use technology

Initiate and complete entire activities

Act professionally

Interact with others

Understand all aspects of an industry

Take responsibility for career and life choices

Student Goal(s) Once the project begins, ask students to generate one or two personal goals.

Come up with accurate measurements to build a drawer(s) for their project.

Assessment

How do you and the students know the project is a success? What are your criteria for measuring students' achievement of the disciplinary knowledge and applied learning goals of the project? What evidence do they use to demonstrate their progress? What deliverables do they need to complete prior to the final exhibition? How will students self-assess?

Students worksheet will be checked for accuracy

If the drawer fits and works properly it is successful

Recommended Resources / Sample Products

Software or Materials Needed

(Examples)

excel

Teacher-Developed Materials

(Examples of materials that can be shared with other classes. Please attach samples.)

worksheets

Student-Developed Materials

(Examples of products that can be shared with other classes. Please attach samples.)

Completed worksheet

Recommended Resources / Sample Products

Websites Used

(Examples)

Final Words

(In a sentence or two, highlight your project's overall value.)

Teacher Tips/Extensions

(Use the first person to share a useful idea that helps with implementation and ensures success. Make it chatty, informal.)

Extensions

(List any ideas for students who may want to go deeper into the learning standards.)

Math is critical to know in cabinetmaking

Other methods of drawer and door construction

Timeline

What sequence of teaching and learning experiences will equip students to develop and demonstrate the PTE standards and the Academic standards?

- Each sheet can be completed in 1 class period, but 2-3 days should be allowed.

(Adapted from the Boston Public Schools Signature Projects.)

