

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	Repairs Invoice
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School	CRTC, Burley High School, Buhl High School
Pathway / Small Learning Community/Academy	Math, Skilled and Technical Sciences
Course Title(s)	Algebra I and Automotive Technology
Time Frame	2 weeks

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 **How much will the final cost be in repairing a car?**

Overview

Students will first learn the cost of parts.

Students will then learn how to find the markup percentage.

Then students will learn how to figure labor time.

Then students will learn how to convert labor time into dollars.

Then students will learn how to figure sales tax.

Then students will learn to find the final cost.

Students will then learn how to find their profit.

Vocabulary/Key Terms

List vocabulary words and key terms essential to student understanding.

Vocabulary/Key Terms

Flat rate	markup
Labor hour	profit
Sales tax	
Subtotal	
Total	
percentage	

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 call parts distributors to get cost of parts and then use the internet to see what shops charge for labor then in the end will work in Quick Books to type up (document) their invoice.

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)? Students will organize and then analyze what repairs they have done with the car to come up with their invoice and then be able to show their profit. Using technology, design original invoice.

Adult Connections Who from the community, workplace, postsecondary and/or industry partnership works with students on the project? Students will contact part distributors, work with shop owners to figure out labor prices to help come up with the invoices.

Classroom Activities

Have students call parts distributors.

Have students call local auto shops to get labor cost

Have students learn about percentages as they pertain to markup and sales tax (using lecture assignment)

Have students learn how to find total cost and profit using lectures, examples, assignments.

Students will use quick books to put together an invoice.

Community Activities

Students will contact parts distributors and also local auto shops.

Career Activities

Students will be able to estimate and come up with a total cost for a repair and also be able to bill and figure out profit.

SkillsUSA

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

Academic/PTE Rigor

standards you are addressing. You may then copy and paste the list into this template.)

AI.3.3.1 Develop proportional relationships to solve problems.

10.M.1.1.6 Use appropriate vocabulary.

04.01 TASK: Apply basic math skills

.M.1.1.1 Apply properties of rational numbers. (347.01.b)

9.M.1.1.2 Use positive and negative numbers, absolute value, fractions, decimals, percentages, and scientific notation, including application in real world situations. (347.01.a)

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.

Students will be able to properly find the final cost and profit to repair a car with 100% accuracy.

Students will be able to properly write up a repair order invoice in repairing a car with 100% accuracy.

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 will be assessed in a variety of ways. Students will have one on one help while working on assignments, they will have task analysis to show proper steps to get cost and create an invoice which then would be put into a rubric to be graded.

Recommended Resources / Sample Products

Software or Materials Needed
(Examples)

Computer (excel), phone, paper, pencil, quick books program, calculators

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

Worksheets (Attached at end), practice, applied learning book work (teacher developed) for percentages, total cost, profit, markup, etc.

Recommended Resources / Sample Products

Student-Developed Materials

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

Students will create a repair order form (Excel) to get cost of parts and labor; they then will print off their invoice utilizing Quick Books.

Websites Used

(Examples)

Alldatapro.com

Shopkey.com

SkillsUSA.org

QuickBooks.com

Final Words

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

This will be a great project for students to do that will be able to help them with their math and automotive technology skills. Students will be able to create their own invoices which will help them when they get a job in the automotive field.

Teacher Tips/Extensions

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

Some students will be able to catch this really quickly but others will need repetition and lessons broken into smaller segments to understand but once it is understood they will remember it forever!

Extensions

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

Students could play with markup value and also labor cost to see how much people would pay before they would start losing customers or losing profit.

Students could also interview those in the parts or shop to understand and get more knowledge to understand markup value and labor costs.

Students could also interview local business members on how much they would pay for repairs on their vehicles.

Timeline

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

- About 2 weeks to complete the whole process.

(Adapted from the Boston Public Schools Signature Projects.)

SAMPLE ATTACHED.

Kuta Software - Infinite Pre-Algebra Name _____

Finding Percent Change Date _____ Period _____

Find each percent change. Round to the nearest tenth of a percent. State if it is an increase or decrease.

1) From 82 to 38

2) From 75 to 45

3) From 33 to 47

4) From 92 to 9.7

5) From 70 to 62

6) From 8 to 4

7) From 58.5 to 76.3

8) From 58 to 53

9) From 79 to 94

10) From 63 to 98

11) From 84 to 4

12) From 71 to 22

13) From 79 ft to 157 ft

14) From 174 miles to 135.9 miles

15) From \$109 to \$98

16) From 122 minutes to 109 minutes

17) From 43 minutes to 160 minutes

18) From 55 grams to 70 grams

19) From 199 ft to 92 ft

20) From 152 miles to 196 miles

21) From 141 grams to 142 grams

22) From 88 grams to 84 grams

23) From 43 minutes to 28 minutes

24) From 54 m to 154 m

Percent (Sales Tax, Commission, Etc.)

Name _____ Date _____

Worksheet #: 73817

Solve.

- 1) Mary took her family out to dinner and wanted to leave a 20% tip for the waitress. If the meal cost \$90 , how much of a tip did she leave?
- 2) George took his friend Amy out to dinner and wanted to leave a 16% tip for the waitress. If the meal cost \$60 , how much of a tip did he leave?
- 3) Janice received a 1.5% commission for selling a house. If the house sold for \$350,000 . How much commission did Janice receive?
- 4) Mike received a 1% commission for selling a house. If the house sold for \$420,000 . How much commission did Mike receive?
- 5) Betty received a 2% commission for selling a house. If the house sold for \$680,000 . How much commission did Betty receive?
- 6) Bob purchased a new bicycle for \$84.00 . If he paid a tax rate of 8% how much did he pay for the bicycle?
- 7) Cindy purchased a new car for \$16,000 . If she paid a tax rate of 7% how much did she pay for the car?
- 8) Steve purchased a new computer for \$550 . If he paid a tax rate of 8% how much was the tax?