

**Phase III Learning Case Study:
Project-Based & Problem-Based Learning**

**PSY 205 Educational Psychology
Learning Plan Template**

Teacher Name: Matthew Hrbacek	Grade & Subject: 11 th Grade, Algebra II
<p>Name of School: Minneapolis High School Background of School ("culture"):</p> <p>Minneapolis High School is in Minneapolis, Minnesota. The city's population is about 420,000 people, and there are people of many different ethnic and religious backgrounds who live there. More than half of the citizens are Caucasian (59%), but there is also a large proportion of African American citizens (19%). There are also several other minority groups which present themselves regularly, including Hispanic citizens (10%) and Asian citizens (6%). The high school displays an even greater level of diversity with Caucasian students making up 55% of the population, African American students making up 30%, Hispanic students making up 10%, with the last 5% being made up by a mixture of students from other ethnic backgrounds.</p> <p>Minneapolis High School is known for their diverse population. I have already mentioned the ethnic diversity, but students also come with a variety of different religious, socioeconomic, and political backgrounds. The beliefs and values of the students vary extensively, and this can often lead to a more disorganized classroom. On some occasions, the students will need to be broken apart before they begin fighting. For the teachers, this means that it is very important to take breaks during lessons so that students can refocus. This also makes it very important for teachers to motivate their content to maintain the interest of their students.</p> <p>Unfortunately, the stress placed upon teachers in this environment has created a high turnover rate for the faculty. Many teachers in this school are just beginning their careers, and many of them do not remain with the school for more than a couple years. This makes it difficult for faculty to establish quality relationships with students, and it makes it especially difficult to build relationships with their families.</p> <p>However, despite the challenges, the teachers at the school are creative and innovative in finding ways to make the content accessible to their students. They do an excellent job of using hands-on activities that engage the students, and they regularly create projects for the students to apply what they are learning in a practical way. The students enjoy this style of learning, and it has helped to create a better community between the students in the classroom.</p> <p>Students are each given their own laptops at this high school, but many of the teachers often must create their own manipulatives. This often works in their favor in the classroom because it helps students to learn how to communicate with each other and work in</p>	

groups. Finally, this has helped to involve the families because students are able to bring these manipulatives home to show their parents.

Parental involvement is one of the biggest challenges at Minneapolis High School. Although there are families who come from a variety of socioeconomic statuses, most families are in a poor or lower middle economic class. This means that in many families, both parents are working. If only one parent is working, the other one is typically very busy working on things around the house or taking care of their kids. The lack of parent involvement makes it difficult for students to continue their learning once they leave the classroom. Therefore, it is important for teachers to give students adequate work time in class. It is also important for teachers to be creative and persistent when trying to reach out to the parents.

PBL Unit Name: Planning for the Future

Specific Standards:

- HS.A.CED.1: Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
- HS.F.IF.4: Use tables, graphs, verbal descriptions, and equations to interpret and sketch the key features of a function modeling the relationship between two quantities.
- HS.F.IF.7: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
- HS.F.BF.1: Write a function that describes a relationship between two quantities

What Resources Will the Students Need (describe all resources and learning materials necessary for your project (e.g., Internet sites, colored paper, graduated cylinders, etc.)

- Laptop (access to Desmos for graphing, Google for researching careers and loans)
- Notebook and pencil
- Posterboard
- Markers

What Resources Will the Students Need (describe all the resources/materials needed for your students to learn):

- Student 1: John is a strong student. He does well in all his classes, and he is especially successful in math. His biggest challenge is working with other students because he feels like they slow him down. Sometimes, he will get frustrated with them, and other times, he will simply refuse to work with them to begin with. In this project, I will allow John the opportunity to work on his own for some of the time, and I will allow him to do his own research for some of the project. However, I will also encourage him to work with other students, by acting as a “financial planner” for Jenna and having days for students to collaborate. This will force him to think more critically about his own project, and it will also help him learn how to be patient as he helps Jenna with her plan.
- Student 2: Mary is a great student who is very outgoing. She is not as strong in math as other students, but she makes up for this by contributing to class discussions each day. She also loves to work in groups with other students, and she thrives in an

environment where she can compare her ideas with her peers. This project may be more difficult at first because she will have to start the project on her own. To help with this, I will plan one or two days where students are able to compare their ideas with others. This will allow her to evaluate how her plan compares with the other students. It will also give her a chance to help other students who may be struggling.

- Student 3: James is typically right around the middle of the class in terms of his academic achievement. He is sometimes a slower learner, but once he has been given enough time to understand the material, he quickly masters it. James' biggest struggle is that he has ADHD. It is very important for him to have breaks where he can get up and move. With this project, he may find it easy to become distracted while he is performing some of his research on the computer. I will plan to check in on James regularly, and I will plan a few brain breaks for him that will allow him to stand up and stretch for a couple minutes after he has been working for a while. Finally, I think that James will also benefit from working with other students because this will give some accountability.
- Student 4: Jenna is a strong student in most of her classes, but she struggles immensely with math. She loves her history classes, but in math, she often does not know where to start. However, Jenna values lessons that have practical applications because they give her a better idea of how to solve problems. Jenna will likely appreciate this PBL at first because she will be able to do plenty of research, and she will like that it connects to her own life. However, she may struggle to understand how to create a budget and how to evaluate the best option for a loan. To help her with this, I will assign her a "financial planner" who will check in with her a few times. I also will allow Jenna to do some of her research on the history of buying a house/car and the history of financial planning if she would like. This will connect her back to some of her interests, and it will help her as she is creating her presentation.
- Student 5: Anna is a proficient student in most of her classes. She has good collaborative skills, and she is also very creative and artistic. However, she tends to struggle with some assignments because she has dyslexia. This makes it more difficult for her to do a lot of reading, and she can quickly become overwhelmed by big assignments. To help her, I will allow her to listen to material out loud. I will also allow her to use videos when she is researching, and I will provide her with headphones so that she does not distract others. I will continue to check in with her throughout the project to see how she is doing. I will also talk to the special education teacher to ensure that Anna is receiving enough support to finish the project well. Finally, Anna will enjoy creating a presentation because of her artistic abilities.
- Student 6: Jacob is a student who has been behind his peers all semester because he did not join their class until a few weeks into the school year. He meets with a special education teacher each week to help him catch up on his assignments. He also meets with me at lunch once or twice a week so that he can get caught up on the material. Jacob loves sports, and this project can be directly connected to this passion because he will be allowed to choose and research a career that interests him. Jacob may be challenged mathematically, but I will try to pair him with another "financial planner" so that he is able to receive some one-on-one attention. He can also work one-on-one with me some of the time if he prefers.

Students Will Do (describe what will be done during the unit in the order they will be done):

1. On the first day, I will introduce the PBL by asking students the driving question: "What does a good financial plan look like, and how can we create one for an adult with (or without) a family?"
Students will be allowed a few minutes to write down a few ideas in their notebook.
Then, I will give a few examples of successful individuals. We will analyze how they became successful, and I will draw attention to some of the details of their financial plans.
Then, we will establish a few financial goals as a class. These goals will guide the project and help students to understand how to gauge success in their project. For example, one goal may be to become "debt-free."
Therefore, a student will design their project around this goal.
2. The next lesson will begin with students researching a career they would like. They will choose the profession that they see themselves most likely to enter once they have completed school. For some, this may require a college degree. For others, they may be able to begin after high school.
Then, I will give a brief lesson budgeting. We will use functions to relate the amount of income to the amount of money being spent in different categories of the budget.
Next, the students will take 1-2 days to research what their budget may look like in the career that they choose. Students must also choose whether they would like to have a "family" or if they would prefer

Describe How This Will be Developmentally Appropriate for:

- Brain Development: Students in this class are around the age of 16-17, which means that their brain is undergoing some important changes. Their prefrontal cortex will continue to develop for a couple more years. This means that these students may still be making impulsive decisions. This PBL is meant to help them develop the ability to make logical financial decisions which will prepare them for life once they graduate. Some of these students may make impulsive decisions about their career, but as they learn about the importance of paying off loans, this exercise will help them to mature. Students are also continuing to prune the information that they find most important, so this PBL will play an important role in retaining information. By connecting the math lessons to real life, students will be more likely to see the information as valuable.
- Cognitive Developmental Stage: These students will likely be found in Piaget's formal operational stage. This project will contain a mix of abstract and concrete reasoning, and it will challenge students to think about their future. It will help them think about problems that may arise when they are adults, and it will help them to plan for these issues before that happen. In this project, students will evaluate different possibilities for taking out a loan, and they must reason through which payment plan will work better for them. This project will also be designed with appropriate scaffolding for students. Some of the students, like John, will need less scaffolding and may even prefer to work on their own. Other students, like Jacob, will need the help of a teacher or student to keep them within their zone of proximal development.

to remain single. They will be responsible for determining their income and expenses. They will be responsible for determining how to break down their expense category, but it should include any bills, groceries, other essentials, and entertainment that they plan on paying for.

At the end of their research, students will take another day to discuss their progress with others. They will meet with other students to discuss their careers and how they are budgeting their money. Then, once they have observed the plans of others, they will have an opportunity to revise their own plan.

3. Once students have created a budget, we will determine what it will look like for them to make a big purchase. Students may choose whether they would like to be buying a car or a house, but for either one, they will be required to take out a loan.

Students will need to determine the typical down payment for their loan. They will also need to research different strategies for paying off the loan. They will see that they can choose to pay off the loan in a shorter period or a longer period. They will also need to determine what interest rate they will be willing to pay for.

Once students have determined what their loan will look like, they are responsible for adjusting their budget based on the monthly payments that they will need to make on their loan.

This section of the project will take 2-3 days.

4. Once students have completed the research for their loans, they must take time to compare two different

- Emotional Developmental Stage: These students are in one of the most challenging emotional periods of their life. Their amygdala is fully mature, and they can experience intense emotions that many adults experience. However, their prefrontal cortex has not developed enough to fully regulate these emotions yet. This means that these students may experience a greater number of highs and lows throughout the time we are doing this project. It will be important to monitor how the students are doing daily to ensure that they do not become overwhelmed by this project. It is also important to encourage them to take short brain breaks so that they learn how to cope with any stress they may be feeling.
- Identity Development: These students are likely in the identity vs. identity confusion stage in Erickson's Stages of Development. This means that they are still finding their identity, and they may be wrestling with some key issues. This may include an identity in their relationships, in their career, and in the other roles that they may take throughout their life. This project may help students to develop a better sense of their identity because it will challenge them to pick a career which they think best suits them. It will also challenge them to think about whether they would like to plan their budget around having a family or remaining single.
- Moral Development: Students may not deal with too many ethical decisions in this project. However, they will deal with a lot of issues pertaining to how they will use their money in a wise way. They will be challenged to think about if they prefer instant gratification or if they prefer long term savings. This will be reflected in the way that they think about their budget, and it will also be reflected in the way that they think about the

payment methods (the long-term and the short-term) to see which one will be best for their budget.

To analyze them, students will create functions or recurrence relations to model how their loan balance is changing over time. This data will all be displayed in their presentation on the posterboard.

During the evaluation process, students will meet with others to discuss their options. This will allow them to compare notes again. Some students may prefer to pay off the loan over a longer period, while others will choose a shorter payment plan. After seeing the preferences of other students, they may reconsider what will be best for their own budget. Then, once students have evaluated which loan is more efficient, they will make their decision and make the decision to take out the loan.

This will take an addition 3-5 days as students are creating their poster and finishing their analysis.

5. Finally, we will plan a night for parents to come in. Students will present their work to the class, myself, and the parents in the form of a 7-10 minute presentation. They will use a poster, and they may also include other visual aids that they find helpful.

loan payment option that they will choose. Students will also learn some things about becoming a financial planner as they work with each other. They will learn how to give good advice by analyzing data, and they will learn how to collaborate with others in making decisions.