

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

**PSY 205 Educational Psychology
Learning Plan Template**

Teacher Name: Shelby Brekhus	Grade & Subject: Kindergarten Mathematics
<p>Name of School: ABC Learning Background of School (“culture”): ABC Learning is located in Chapel Hill, North Carolina. Chapel Hill has a population of 59, 862 with the population being 68% Caucasian, 12% Asian and 10% African American. ABC Learning is moderately diverse in the school setting. The school setting follows the cities demographic, and all are fluent in English.</p> <p>ABC learning is a middle-class school with range of families with high and low income. ABC learning holds students from Pre-K to 2nd grade level. The population of the school is 350 kids. There are multiple rooms of the same grade for students to travel around to work and learn from new classmates and new teachers. With the range of grades, other grades can come into the younger grades to help “teach” and interact with the younger kids. They have shared music, gym and recess times. The young can learn from the older students and the older students are able to be role models for the younger kids. The school is located in a clean and safe neighborhood of the middle-class community. These Children are taught Visual Arts, English, Math, Science and Social Studies. Each student gets time for music and gym twice a week and recess every day.</p> <p>Mostly all the teachers at ABC Learning are 1-5 years out of college. They all bring energy and passion to the classroom. With being new teachers, they are up to date on all technology resources and the latest versions of teaching. They all bring their own styles but feed off each other to better their classroom in new ways to keep things interesting for the students.</p> <p>Students radiate their love for the school and their teachers. It is not often that there are major issues with students. If there were to be a problem, and the issue couldn’t be solved with the teacher, the student will be sent to a principle to discuss further planning. Parents will also be called in to be informed of the situation.</p> <p>Parent involvement is major at ABC Learning. Children can’t succeed if they don’t have the support and encouragement from their families. We have many different opportunities for parents to come in for certain programs, activities and school committees. Monthly parent meetings with the student and teacher are highly encouraged. We have a closed Facebook group that parents may join to see what their children are learning and doing that day. Along with parents, we have many student volunteers coming in to help. This lets the children develop more mature relationships and attitudes.</p>	

<p>PBL Unit Name: Exploring Addition and Subtraction and Numbers to Ten</p>	<p>Specific Standards:</p> <ul style="list-style-type: none"> • K.OA.1 Represent addition and subtraction in a variety of ways. • K.OA.2 Use an appropriate strategy to solve word problems that involve adding and subtracting within 10 • K.OA.2 Decompose numbers less than or equal to 10 into multiple combinations of two parts. Record each decomposition with a drawing or equation. • K.OA.4 Find the number that makes 10 when added to a given number from 1 to 9. Record with a drawing or equation. • K.OA.5 Fluently add and subtract within 5 • K-5.1A1.2 List questions based on a problem or need • K-5.1A1. Use basic search strategies to locate resources
<p>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.))</p> <ul style="list-style-type: none"> • Poster board- Creating ideas • Graphic Organizer- Explaining who, what, why, when, and where we are trying to target in the video. This will be created in the first lesson as a class effort • Notebook and pencils- for writing down notes • iPad/Computers- To record the video and to research other math videos • Props for learning and for making the video more exciting and intriguing • Visual- posters, pictures, and blocks to help the students learn addition and subtraction • Art Supplies: glue, pencils, paper, colored paper, markers, glitter, tape, construction paper, crayons/colored pencils, pens 	
<p>What Resources Will the Students Need (describe all the resources/materials needed for your students to learn):</p> <ul style="list-style-type: none"> • (describe this student and what he/she will need) • Student 1 (Olivia): Olivia is a girl who likes to stay busy throughout the day. She always needs something to do. Olivia is also advanced for her age. She has a wide range of vocabulary and asks a lot of questions. Olivia is shy around those she doesn't know very well. One way I plan on challenging her is to put her into a group with students she isn't as close with. This will challenge her to share her ideas, even when she doesn't know the students as well. Since Olivia is very active and busy in the classroom, she has a hard time focusing. To help her focus more, I will have her make a list of tasks that need to be done throughout the day to help her stick to one thing at a time. This PBL project will also keep her focused on making this video. • Student 2 (Lewis): Lewis is a very intelligent boy who is advanced for his age. He really needs to be challenged in the classroom setting. Lewis loves math because of the structure and patterns. He is very hands-on and loves doing outside activities. This PBL will be a great way to challenge him in his math. It will push him to think outside of his comfort zone to 	

make a video to encourage others to learn about math. Lewis loves making people happy and is a very caring kid, this video will also help him reach to others and show his kindness and help him grow as a person.

- Student 3 (Anna): Anna is a bright young girl who likes to be challenged in the classroom. Anna is advanced in each subject. Anna is a very hands-on learner, so I believe this PBL will be a great way to challenge her in the classroom. I will have the students work alone before they get together and discuss with groups in order to brainstorm and find their own ideas. She will also be challenged by working with others and having to compromise and share different ideas. This project is also very hands-on, so Anna will want to get involved right away and share all her brilliant ideas.
- Student 4 (Skyler): Skyler is a great girl. She is a risk-taker; she is always willing to try new things. Skyler struggles with some words for her age, but she has a good vocabulary. She falls behind in her subjects and struggles to understand content, it is too advanced for her. This PBL will be a great learning experience for her. In order to help Skyler in the classroom, I will be doing more one on one work with her, making sure she understands the content that is being taught. I also think group work will be great for her. I will strategically place her in groups where the other students can guide and help her.
- Student 5 (Zach): Zach is a very advanced student. He always wants to be challenged. Zach is advanced in all subjects but reading. He struggles to stay focused on his reading assignments. This PBL will be great for Zach to be involved and learn with his friends. Zach also sees an occupational therapist for his sensory issues. I plan on working with his therapists throughout this project and making sure to help Zach in any way I can. He is someone I would partner up with Skyler to help guide her. To help Zach with his reading I plan on sending home readings for him and having him read the assignments before we read them together in class. I would also have home listen to some readings and have him try reading books that involve his interests. I want Zach to enjoy reading and to succeed in it.

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

1. I will begin this PBL Unit with a driving question, "How can we work together to spread the love and knowledge of math to other children around the world? I will have the students write down ideas/thoughts they have that might work. I will go over these answers to see what the students had for an idea. Did they draw pictures? Use technology? The goal is to have the students explain subtraction and addition to those around the world. I will then explain

Describe How This Will be Developmentally Appropriate for:

- Brain Development: These children are in the early to middle and late childhood stage. These children's brains are still developing each day. Their nerve endings continue to increase into their adolescence, and the growth size will increase due to myelination. This development allows the students to focus their attention on one thing at a time for certain periods of time. These student's prefrontal cortex is also developing. While it is still developing, their attention, reasoning, and cognitive control are all improving. During this stage of development, their brains are changing, and cognitive development is

to the students that we will be making a video to show and help other students with their math problems.

I will then do a lesson on subtraction from numbers 1-10. I will make sure they understand how different numbers can subtract to have the same answer, ex. $4-2=2$ and $7-5=2$. By doing so I will use pictures and equations for students to better understand the content. During this lesson, we will begin a graphic organizer, KWL charts and Venn diagrams that will be referenced throughout the unit.

2. The next lesson will be on addition. I will teach the students addition from numbers 1-10. After this lesson, the students will start putting together their projects and focusing on ideas to answer that driving question. As a class, we will add to the KWL chart and Venn Diagram. As a class, we will make a list of what we need in order to make a video and to upload it. As a class, we will also watch other math videos and ask other technicians in the community how to make a successful math video.
3. The next lesson will be on story problems and how to solve them with addition and subtraction. After the students have mastered this, the students will be put into small groups to work on making their own story problems that will be put in the video.

The students will then have roles in each group. The students will start off independently generating their own thoughts and ideas. They will then be put into groups and given their roles. One student will be the

activating some brain areas and decreasing with other areas. This PBL is a great way to challenge these students. This PBL will have students' reason with their group members and listen to their ideas. This project will also help the students focus their attention for longer periods of time and to focus on one thing at a time. This will help each student, especially Olivia. Olivia likes to stay busy in the classroom and has a hard time focusing, this project will allow her to focus her attention and her learning. This PBL will allow students to reason and connect it with real-life events by creating the story problem. Throughout this process, I will guide students and help them with keeping their attention and focusing on their learning. Overall this project will help increase the development of the prefrontal cortex, increase their nerve endings, increase brain growth which increased the speed of the information traveling through the nervous system and help students to apply their problem solving to real like experiences.

- Cognitive Developmental Stage: The preoperational stage is the basis of this PBL. Students will be using that primitive reasoning trying to find the answer to the driving question. Students will be using centration which is focusing their attention on a certain thing. They will use this by focusing on their roles in the project and working together as a group. Each student will be working with the goal of developing further into the preoperational stage and to get ready for the concrete operational stage. During this PBL Zach, Lewis, Anna, and Olivia will be focusing on developing and mastering the preoperational stage. They will be more into the intuitive thought substage and trying to master centration and conservation and moving toward the concrete operational stage. Skyler Will also be in the preoperational stage, but she will be more in the symbolic function substage. Skyler will be

recorder, another will color/be the artist, the other will write the information on the poster, and the other will be in charge of figuring out the props and items they will need throughout the project. Some roles will have two students depending on group size. I will be within each group guiding each role and making sure they stay on task.

For 2-3 days each group will have to create either a subtraction or an addition story problem. They will work together to create the story problem and to also show step by step how they solved this problem.

- The students will be encouraged to use pictures and other objects to make solving the story problem as easy as possible.

4. For the next week, students will be working on their story problems and explaining the process to solve them. They will each create a poster board explaining their plan and what they want to show in the video. Then, each group will present their poster boards to our tech executives. The students will also start creating their videos. Each group will work on their own clip, and at the end, we will put the video together. They are encouraged to bring props into the classroom, 'dress' like a math professor, anything to make the video intriguing to those watching it.
5. Finally, I will help the students with any final touches on their clips. I will help them put the video together. The video will be presented to other kindergartners, parents, and the rest of the school. With parent permission, the video can be uploaded to Facebook,

mastering her expansion of her use of language and making designs/drawings. Skyler will be working towards the intuitive thought substage. Skyler will need guidance and more one on one time throughout the PBL. That is why this PBL will be such a great learning experience for her. The group work will allow her to work with other students who will help and guide her through the project. I will also incorporate scaffolding into this PBL. At the beginning of the project, I will be helping and guiding the students so that in the end they are able to teach others about math with little to no guidance.

- Emotional Developmental Stage: This PBL will allow Zach, Lewis, Olivia, and Anna to help their emotions develop in the Industry versus Inferiority stage. This will be done by having the students work in groups and challenging them to share their own thoughts and listening to others. Students will be working on mastering their mathematical skills. I will guide them throughout the lessons that are taught, and they will guide each other throughout the group work. This unit will also allow Skyler to further emotionally develop throughout the autonomy versus Shame and Doubt and the Initiative versus Guilt. For Skyler, she will be developing more social skills and needs to be engaged in active behavior. These will also be met with one on one work and group work. She will socialize with her group members and have to work together to make the video. Skyler is also looking for that trust in her teacher and her classmates. I created this PBL to reach each student's level and stage of development. This unit will help each student master the content and help them emotionally develop.
- Identity Development: These students are very young. They range in age from 3 to 7 years old. They don't really have any one specific identity that they have attained. I do believe this

YouTube, and other blogs to help spread the learning of math to other Kindergartners around the world.

PBL will help the students learn about the identity's around them and help guide them to find theirs. These students are mainly around their family and close friends. The identity they may be familiar with is gender identity, interests, relationship identity, and more in the identity diffusion. The students understand that there are different genders in the class and in their families. They create relationships with their classmates and their teacher. They have so many interests and talk about what they want to be when they grow up. Zach is always talking about farming and wanting to be outside working in the dirt. Lewis is always wanting to adventure and be with family. These students are already starting their identity that will change throughout their life. This PBL involves working with classmates and with the community allowing them to find and search for their identity without them even realizing they are doing it. This unit will give the students the chance to be introduced to the different components of identity and how they will use and develop them throughout their life.

- Moral Development: These students are in Kohlberg's level 1 pre-conventional reasoning. This means the students are listening to adults because they tell them to listen and are pursuing their own interests while allowing their friends to do the same. They feel that if they are nice to someone, they will be nice back. This unit will help them work up to Kohlberg's second level, conventional reasoning. They will start to learn to understand what the teacher is saying rather than doing it just because they said so. They will also be looking to pursue what interests them most. This unit will help them find their interests by working with others and collaborating different ideas.