

***Creating Work Skills Through Project Based
Learning***

Created by: Shayleen McFarlane and Bev Seymour
Outlook High School
2013-2014 School Year



Table of Contents

- Objective, Dynamics, Prerequisite Knowledge
- Summary of Final Project
- Our Project- Successes and Roadblocks
- Sample letter home
- Sample of Prerequisite Knowledge lesson
- Further resource activities used to practice skills
- Bloom's Taxonomy Question Frame- Planning Resource
- Final Project Student Handout
- Resources Used

Creating Work Skills Through Project Based Learning

Objective

Students will develop skills needed to work independently and with a group within Problem Based Work. The skills centered around 21st Century Competencies and work skills desired by employers. Five skills which will be learnt, discussed, reflected upon, and executed include: leadership, problem solving, teamwork, time management and communication.

Dynamics

21st Century Competencies- Creating Work Skills through Project Based Learning

Grade Level: 9 (could be adapted for younger and older grades)

Class Size: Completed with a class of 32, could be adapted for any size

Skills Practiced: Leadership, problem solving, teamwork, time management and communication (broken down into verbal, and non-verbal).

Pre-Requisite Knowledge/Activities

Before creating the final project, students took part in “mini-units” of study which focused on one of the five skills. The mini units were formatted as follows:

- **Article:** read article focusing on what the skill is, why employers want this skill, how this skill will benefit them, and key points in properly executing this skill.
- **Demonstrate:** Pause through article and demonstrate proper use of the skill
- **Practice Activity:** Read a scenario that uses the skill and students will discuss and reflect upon what happened, what the problem was, and using acquired knowledge, execute how the situation should have been done
- **Debrief Activity:** What was done well? What did you learn?
- **Large Activity:** Have students take part in a larger activity where they must use the skill in order to complete the task
- **Reflection**

Creating Work Skills Through Project Based Learning

Summary of Final Project

Following designated steps, students used skills from prior lessons to properly execute an activity centered around the theme “better self, better school, better world.” Students were assigned a group consisting of three other members and were first tasked to come up with something that they were passionate about changing. Once they came up with a list as a group, they were to choose one thing that they could all agree on that they would like to see changed. At this time, teachers prompted groups around the classroom in directions that would create further critical thinking. Student’s ideas ranged from world problems, to problems within Canada, and problems within the community. They then had to complete the following steps within the handout:

- Breakdown the problem
- Create an understanding of things they need to know in order to solve the problem
- Create an action plan to designate roles within their groups
- Reflect upon their investigation(meta-cognition)
- Deepen their understanding of the problem
- Use a variety of sources to research the problem and possible solutions; including the internet, the library, and knowledgeable people
- Summarized and refined the problem
- Educated classmates regarding their issue through a multi-media presentation
- Proposed a solution to their problem; this included fundraisers, taking action, and protesting to the appropriate sources.

Once students educated their classmates and proposed a solution, they voted on the one that they believed they could make a difference in as a class. It was unrealistic to complete all of the proposed solutions, the students instead focused on one that they could all feel passionate about and took the groups solution and executed it.

Creating Work Skills Through Project Based Learning

Our Final Project:

Students chose many important issues to educate and make a difference in. These issues included: The Homeless in Saskatchewan, Animal Abuse, Child Abuse, Water Coolers for the School, Philippines Typhoon, Nicaragua Needs Help, Children and Overuse of Technology, and Bullying. After following the handout, students each created a video or presentation and presented it to younger grades to educate them on the issues that they were passionate about and how the other students in the school could help. Students then presented their visual to the class and asked them to help their group make a difference. At this point, students were lacking passion and real conviction in their work. We took a break from the handout and showed the students effective public speaking and how to evoke passion from their classmates and how to show it themselves. We then had them write a speech asking their classmates to pick their cause and their fundraiser, without the use of visuals, and focus solely on the passion they could convey. The students chose to raise money to buy water coolers for the school and asked the Principal and Vice Principal if they would agree to be duct taped to the wall to raise money. The students visited classrooms and set up a booth at lunch time where other students could buy duct tape to tape the administration to the wall.

Successes:

- Students were able to take an active part in something that they were passionate about.
- Students learned additional skills, such as how to properly contact a knowledgeable source.
- Students learned how to ask questions to authority figures with confidence.
- Students took initiative and emailed and called agencies, experts, and community members for information.

Roadblocks:

- Students struggled with how to reflect and what reflection should look like.

Creating Work Skills Through Project Based Learning

- Students initially lacked passion for the things that they were trying to make a change in.
- We had to create a side unit within the project to emphasis how to evoke and show passion. Students had to create a speech and present it to their classmates to tell them why they should pick their group and why it was so important that they choose their cause to make a difference in.
- Students did not understand how difficult it would be to organize and raise money for their cause. They assumed that because they did the hard work to put the event on, others would just donate automatically.

Creating Work Skills Through Project Based Learning

Sample Letter to Send Home:

Dear Parents and Guardians

During this semester in PBL we began by developing the skills needed to work independently and with a group within Problem Based Work. The skills centered around 21st Century competencies and work skills desired by employers. These skills were divided up into "mini-units" of work; which included readings, discussion, activities and reflection. The five skills that we have been learning and executing are as follows: leadership, problem solving, teamwork, time management and communication. Recently, the students completed a learning behavior sheet; we encourage you to speak with them about their self-reflection during student lead conferences. Moving forward, we will begin to start our first large project where the students will work independently and in groups to solve a problem along the theme of "better self, better school, better world." We encourage you to have discussions with your children as to the importance of these skills and where they can use them in their daily and future lives.

Sincerely,

The block contains two handwritten signatures in blue ink. The first signature is 'Bev Seymour' and the second is 'Shayleen McFarlane'.

Bev Seymour and Shayleen McFarlane

Creating Work Skills Through Project Based Learning

Sample Resources

Career Skill 8

SOLVING PROBLEMS

Problems are a fact of life. They occur when things don't proceed the way you expected or wanted them to. The ability to solve problems and move forward is important in many jobs and in life.

The first step to solving any problem is to recognize that you have one. You have to see that there is a difference between what is happening and what should be happening. But you can't stop there! Solving problems also includes the ability to

- Identify possible reasons for the problem
- Think of a plan of action to solve the problem and carry it out
- Determine how the plan is working
- Change the plan as necessary to improve results

Careers That Use This Skill

Any worker will do better by having this skill, but these careers are strongly focused on solving problems on a regular basis:

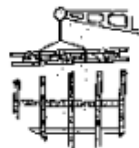
- Lawyers
- Police
- Auto mechanics
- Computer support specialists
- Hotel managers
- Engineers
- Childcare workers
- Counselors
- Repairers
- Customer service representatives



Creating Work Skills Through Project Based Learning

Build Your Skills

Are you willing to tackle problems in your daily life or at school? Or do you tend to give up and leave the solution to somebody else? The more you tackle problems, the more practice you get in problem solving. There are many ways you can develop this important skill.



Education

- Take math classes to learn how to approach problems with a certain logical method.
- Read about business management to learn successful approaches to solving problems.
- Look for examples of problem solving by your teachers and principal.

Activities

- Think of a plan to correct a problem in your life right now. Put the plan into action and see whether it works. Change the plan if necessary.
- Identify a problem in the world today such as a war or a medical condition without a known cure. Research what people have done to try to solve this problem. What's worked? What hasn't?
- Suggest a problem scenario to several people and ask how they would solve it. You might be surprised how many different suggestions you get. Which is the best? Could two or more of the suggestions work, even though they use a different approach?

Creating Work Skills Through Project Based Learning

Performance Review

What rating would an employer give you on solving problems?

- Needs Improvement
- Above Average
- Average
- Outstanding

To become an outstanding problem solver, keep the items on the following checklist in mind when you're faced with a problem.

SOLVING PROBLEMS CHECKLIST

- ☐ Determine whether there is a problem and what the reasons for that problem are.
- ☐ Come up with a good plan to solve the problem.
- ☐ Evaluate whether the plan is working and be willing to try a different one if it isn't.

Words at Work

These words relate to problem solving. How many can you define?

- Discrepancy
- Monitor
- Solution
- Modify
- Resolve
- Implement
- Evaluate
- Approach
- Strategy



Creating Work Skills Through Project Based Learning

PBL 9

Name:

Date:

Problem

You are currently set to go watch a movie with your friends tonight at 9:00 pm. You are all very excited as you have been waiting for this movie all year and your friends have purchased tickets beforehand to make sure you get in. However, you also have a babysitting job and were scheduled to babysit the neighbor family from 6:00-8:00, just in time for the movie. This works perfectly for you as well because you have a Social Studies test the next day and can use the time while the children sleep to study as you do not know the material very well and your marks have been poor in the class so far.

Unfortunately for you, you receive a phone call at 7:15. It's the parents of the children you are babysitting. They are asking you if you could stay until 9:30 because a friend showed up at their event that they have not seen in a long time. The movie starts at 9:00 and your friends are waiting, you have also only just begun to study. Your parents were also scheduled to pick you up at 8:00 to take you to the movie after babysitting.

What do you do? Please detail your steps below.

Creating Work Skills Through Project Based Learning

Name:

Date:

PBL Self Reflection

1. Which skills were covered in each of the activities we have done so far? Please justify your answer by using examples from the activities.
2. Think of an example where you use each skill in your day to day life, please document it below:
3. Of all these skills, which is the one you believe you will excel in the most? Why?

Creating Work Skills Through Project Based Learning

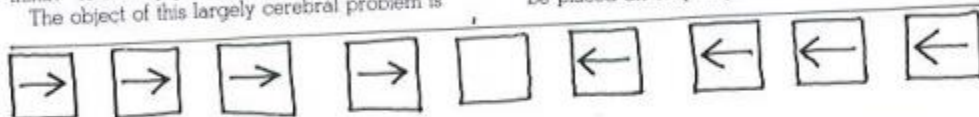


I forget the correct moves to this problem almost every time I present it, but I have yet to see a group that didn't eventually come up with a solution. So don't worry about remembering the answer, just get the rules straight and then look sagely amused by their attempts, offering an occasional "Hmmmmmm" or "What do you think?" to solidify your all-knowing aura.

The object of this largely cerebral problem is

to have two groups of people exchange places on a line of squares that has one more place than the number of people in both groups.

The physical set-up can be arranged almost anywhere. The boxes, indicated in the illustration, can be marked with chalk, masking tape, scratched in the dirt or be paper plates, scrap paper, etc. The marks or markers should be placed an easy step from one another.



Rules:

To begin, one group stands on the places to the left of the middle square, the other group stands to the right. Both groups face the middle unoccupied square.

Using the following moves, people on the left side must end up in the places on the right side, and vice versa.

Illegal Moves:

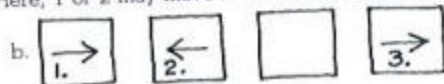
1. Any move backwards.
2. Any move around someone facing the same way you are; i.e., you are looking at their back.
3. Any move which involves two persons moving at once.

Legal Moves:

1. A person may move into an empty space in front of him/her.
2. A person may move around a person who is facing him into an empty space. Thus,



Here, 1 or 2 may move into the empty space.



Here, 1 may move into the empty space, because two people are facing one another.

Note: This is often a difficult problem. Thus, it is not recommended for younger children.

Traffic Jam **

After a solution to the problem is discovered (or chanced upon) and the group discovers that one person giving commands is the most efficient way to solve the "traffic jam," ask that individual and the group if they can quickly solve the problem again. The leader will ordinarily stumble a bit in a repeat attempt, but the solution will eventually be reached more efficiently.

Ask the group to try it once again, indicating that you have an additional challenge for them and that successful completion of this addition depends upon complete understanding of the solution.

When they appear confident with their solution, have them line up on the squares in a "start" position. Indicate that completion of this next challenge involves having everyone go through the solution moves of the original problem while *holding their breath*. The leader, who stands apart from the group, is the only one allowed to give commands, and breathe. If anyone breathes before the last move, the whole group expires in horrible agony (but not before bludgeoning their fumbling leader) and must begin again!

This is one of the few problems in which a group will eventually decide to have one person take charge and for the others to be quiet and follow directions. This is worth talking about in comparison to other initiative tests, and other life situations. It can lead to a useful discussion of leadership styles, the selection process of the leader, the experience of being a follower, etc.

Creating Work Skills Through Project Based Learning

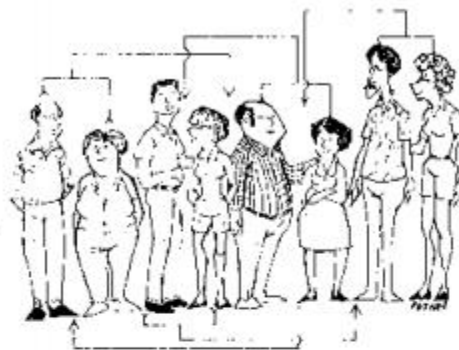
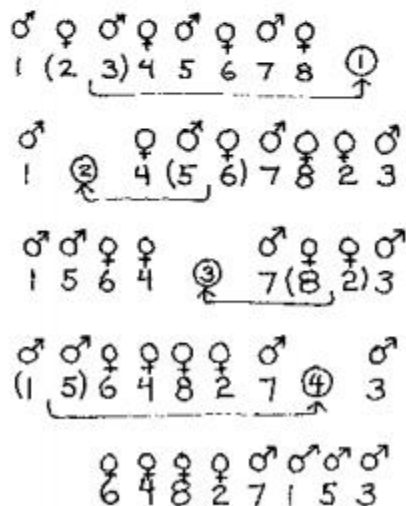
Two by Four (2x4) **



This is a tabletop problem usually attempted with black and red checkers. In this case, substitute people for checkers and male and female for colors. It's a semi-cerebral problem that usually requires more trial and error than thinking.

Ask 8 people to line up shoulder-to-shoulder facing you, alternating male/female. See if the group can end up with males on one side of the line and females on the other, utilizing the following rules and guidelines:

1. The criterion is to complete the problem in the least number of moves. Four moves is the minimum. Don't announce the minimum until an initial try has been made.
 2. All moves must be made as pairs. Anyone next to you is a potential member of a pair; male or female.
 3. As a pair moves, they leave an empty slot in the line which must remain and be eventually filled by another pair.
 4. Pairs may not pivot or turn around.
 5. The final line must be solid; i.e., no gaps.
- The following number sequences illustrate the 4-move solution:



If the group is suffering from terminal frustration, give them the first correct move. Such largesse increases the group's belief that the solution is imminent and depending upon their outlook, that's either one less move than 4, or 3, to go.

If you forget the solution or neglect to reproduce the above solution on your palm, don't panic, just appear slightly amused at their attempts or sagely tolerant coupled with an occasional smile or slight affirmative nod of the head until the students eventually hit on the right combination. If 2 or 3 hours have gone by and your nod is more weary than reinforcing you may have to postpone the solution (escape route #7) by suggesting that they "sleep on it."

Creating Work Skills Through Project Based Learning

Name: _____ Date: _____

Bloom's Taxonomy Question Frame

Reading Assignment: _____

Use your Critical Thinking Flip Chart to write one question and answer for each of the levels of Bloom's Taxonomy. These questions will be based on the reading assignment indicated above.

Level 1 - Remembering

Q Discussion - What are you passionate about, where do you want to see change, who do you want to help? (1)

Level 2 - Understanding

Q Big Question(s) * Assign Roles (2)

Q What do we know? What do we need to know to address Big Question?

Level 3 - Applying

Q Here is the problem, how can we apply our research to solve this? (3)

Q Essential questions * Specific project chosen in this time frame.

Level 4 - Analyzing

Q What steps do I need to take to achieve our goal?

Q * draw conclusions
* goal setting - long and short

Level 5 - Evaluating

Q How can you help? How will you encourage others? (4)

Q * Educating * Presenting

Level 6 - Creating

Q What action are you going to take? (5)

Q * Taking action

[illegible]

Creating Work Skills Through Project Based Learning

3. Beginning Your Investigation

You need a deeper understanding of the issues in the problem before you can recommend solutions. These questions can help you think about possible issues.

*When did the problem get started? What changes have occurred over time?
Does geography have an influence on the problem? Who has an opinion about the problem? Who might not want to find a solution? Who really needs to find a solution?*

List four questions you should answer in order to get a better understanding of the problem.

QUESTION	ACTION	RESOURCES	WHO?
1:			
2:			
3:			
4:			

Creating Work Skills Through Project Based Learning

Action Plan for Research

Successful investigators make a plan of action to investigate a case. That way they do not leave anything out, or spend time looking for things that do not help solve the problem.

Next to each of your questions in Step # 2 above, list the actions you need to take, the resources you could use, and who in the group will take responsibility for each of those actions.

4. Thinking about Your Thinking (Metacognition)

Your stake in this case comes from being _____ (your role).

As an investigator, what skills or attitudes will you need to bring to the investigation of this problem?

Expert problem solvers frequently examine their own thinking. One thing they want to keep checking on is their own bias. *Bias is defined as a personal opinion, preference or prejudice.*

Why is it important to know what biases you bring to the investigation of a problem?

What are your personal biases as you approach this problem?

Creating Work Skills Through Project Based Learning

PROBLEM LOG B – Beginning the Search for Information

1. Deepening Your Understanding of the Problem

To begin your investigation, choose one of the questions you identified in Problem Log A. Clearly state the question you want to answer. If the question seems big and complex, break it into smaller questions. Answering the smaller questions might answer the bigger question.

Your question:

Smaller questions:

2. Searching the Internet

Many web sites may provide information about your problem. These sites can be found by searching the Internet by using keywords or phrases. Select some possible key words or phrases and connect to the Internet; use a variety of search engines, such as Ask Jeeves, Google, Lycos, etc. to look for sites.

Keywords or phrases:

Organizing the Information from Your First Internet Search

At the top of a sheet of paper, write the three lines found below. Copy the exact URL for the site you are visiting after the line “Internet site.” Find the owner of the site, if you can, and add that information after “Owner or controller of the site.” Then record information that helps to answer your question after “Important information.” If you visit more than one Internet site, use a separate sheet of paper to record information from each site.

Internet site URL:

Owner or controller of the site:

Important information:

Creating Work Skills Through Project Based Learning

3. Searching the Library

Another more traditional source of information is to be found in the library. Using the same keywords or phrases identified in the Internet search section to search by subject in the library catalog and databases. Try to find at least one magazine or journal article, one newspaper article, and one book that provide information. Ask a librarian for help if you need it.

At the top of a sheet of paper, write the four lines found below. Use a separate sheet of paper for each reference (magazine or journal article, newspaper article, book).

Title:

Author(s):

Publisher and date of publication:

Important information:

4. Contacting experts or other knowledgeable individuals.

Many times, a quicker and more efficient way to find information is to contact experts or other knowledgeable individuals directly, via telephone calls, email, or in person. Brainstorm a list of who might be able to assist you with the problem; then find the contact information for that person. Your teacher can suggest ways to find out how to get in touch with these experts.

Before you make the contact, list the specific questions you are going to ask below, using the other box to write down the answers given. Keep a separate log sheet for each expert or knowledgeable person you contact.

Person contacted _____ **Occupation** _____
Phone #: _____ **email:** _____
Date of contact _____

QUESTION	ANSWER

Creating Work Skills Through Project Based Learning

--	--

5. Summarizing What You Learned

After collecting relevant information, summarize what you have learned by answering the question or questions you wrote down at the beginning of your search.

Your question (s):

Your information so far:

6. Thinking about Your Thinking (Metacognition)

Expert problem solvers make sure the information they use is *relevant* and *reliable*.

“Relevant” means that the information directly applies to or answers your question(s).

How did you decide if the information you discovered was relevant?

“Reliable” means that you can depend on the information to be true and without bias.

How did you decide if it was reliable?

What clues at a Web site or in printed sources can help you decide if the information was relevant and/or reliable?

Creating Work Skills Through Project Based Learning

Problem Log C – Refining the Investigation

1. Further Defining Your Problem

New information from your first search efforts probably helped to answer some of the questions. It is likely that new questions also occurred to you as you investigated. In the space below, build a new question based on information you have learned so far. Below the question, write keywords or phrases that are likely to lead you to information that will help you answer the question.

New question:

Keywords or phrases to guide your refined or new search:

2. Defining the Final Product or Solution

Before trying to provide a solution to a problem, how the evidence will be presented must also be decided. (Your teacher may have some requirements for you in this area.) What is the problem you and the other investigators need to resolve?

We need to:_____

We must think about or show the following:

- 1.
- 2.
- 3.

Other special limits, requirements, or criteria:

Creating Work Skills Through Project Based Learning

3. Thinking about Your Thinking (Metacognition)

Problem solving is challenging work. What have you noticed *about yourself* during this process regarding each of these characteristics?

Put a mark on the scales (lines) below that best indicates *where you are* during this investigation.

Persistence: *"I keep on trying to find the answers or the solutions, even when the questions are hard or confusing."*

I give up easily

I am very persistent



Accuracy: *"My work is careful, exact, and without errors."*

My work is
quick & sloppy

My work is
precise & exact



Open-mindedness (unbiased): *"I am open to the opinions or ideas of others. My views can be changed when I learn more facts about an issue."*

My opinions
cannot ever
be changed

My opinions can
be changed with
good evidence

My opinions
change very
easily



Creating Work Skills Through Project Based Learning

Problem Log D – A Second Search for Information

1. Digging Deeper into the Problem

Using the question you wrote for Problem Log C # 1, dig deeper for information. Organize your findings by recording them on another piece of paper like you did in Problem Log B. Remember when thinking about your questions; keep in mind what you want your end goal to be and how you can help that goal. We will be creating this specific goal in the next step.

QUESTION	ACTION	RESOURCES	WHO?

2. Thinking about Your Thinking (Metacognition)

It is likely you still do not understand some issues in the problem. But you must give your recommendations very soon. Experts are often asked to solve problems that contain unresolved issues or arguments.

What issues or questions about the case are still unclear to you?

How can you make recommendations if some issues still need to be answered?

How did you decide which evidence is most important and must included in your solution, and which evidence is of less importance?

Creating Work Skills Through Project Based Learning

PROBLEM LOG E – Building Solutions

1. Thinking about Your Thinking (Metacognition)

Before you give your recommendation or solution, think about what the stakeholders (the people who are effected by the problem) in the case will be looking for in your work. What do you think they would expect as to:

CLARITY: How will you make your work clear and understandable?

DEPTH OF UNDERSTANDING: What will you do to show them how well you understand the problem? How will you make sure the stakeholders in the controversy have confidence in your recommendations?

FAIRNESS: How will you show that you've considered all sides or issues in the case?

Creating Work Skills Through Project Based Learning

Preparing Your Recommendation

Real world problems have no simple solutions. Write your recommendation for resolving the issue or question that you've investigated and how you will take part personally. Remember, part of your goal has to be something that you can accomplish as a group. Then list the positive and negative consequences that are likely to result from your recommendation.

Recommendation:

Positive consequences (Benefits):

- 1.
- 2.

Negative consequences (Costs):

- 1.
- 2.

3. Plan for "Publishing" Your Results

Many steps are involved in preparing a final report, product, or exhibition. Not only will we be achieving these recommendations, but we will also be educating others. Follow the following steps to achieve this publication step:

1. What type of presentation would best suite educating others about your goal?
2. What is your target group that you would want to present to? (Class, peers, teachers, community council, etc.)
3. Create your presentation to be shared with the target group of your choosing!

Creating Work Skills Through Project Based Learning

Be sure to give credit (as references) in the final product for:

- *ideas that came from other scientists, authors, or experts*
- *photographers or sources (URLs) of pictures*

Take Action!

You have come up with a recommendation, you have educated yourself and others on the issue, now it is time to take part and make a difference! Using your recommendation, create a plan of action that you and your group can do in order to make a difference in your chosen “problem” or “goal.” Remember the following:

- What is our end goal?
- How will we achieve this goal?
- What will you need to achieve this goal?

Once you decide upon an action, be ready to present it to the class!

Creating Work Skills Through Project Based Learning

Resources

Jist Editors. *Young Person's Career Skills Handbook*. Jist Publishing, 2006.