



Introduction:

It is 1897 and your family and you have recently left Skagway, Alaska. You are headed to Dawson City in the hopes of striking it rich with gold, like those three sourdoughs did at Rabbit Creek last year.

Although your family has already purchased hundreds of kilograms of supplies at the last HBC store, which is a command economy that controls prices, you still need to buy more merchandise such as lumber, glue, and nails. There are some merchants who have set up stores along the way but these people are crooks who use the supply and demand system. They will gouge you out of your hard earned money so you need to purchase your items wisely. The merchants will not let you return any goods for a refund nor will they replace any broken items.

Keep in mind that the NWMP are in the area. Although they will preserve the law and keep order in the Yukon, be aware that heavy fines and penalties will be given to those prospectors who break the law by loitering, causing commotions, and/or using tools and equipment illegally. You have been told that the Chilkoot Pass is very steep and the mountains are rough to cross. The rivers are no better. Since the rivers are filled with frigid water and killing rapids they are very treacherous. Once you arrive, and if you are lucky enough to find gold, you will need to separate all the gold dust and nuggets from the ore and mud.

Your idea is to create prototypes to 1) save you time along the way and 2) speed up the mining process. You will scale your prototypes to fit these new-fangled, long-legged dolls they have created. (Built to action figure, Barbie Doll size.)

Task:

Your family needs to build several different machines and each prospector in your family is responsible for their own device or machine. It is to be built to scale.

You need:

- A) mechanized, hydraulic, or electrical arm: (were electricity and/or batteries around in 1898?) to lift a pile of food and supplies over the Chilkoot Pass and deposit them safely on the other side of the pass.
- B) extension ladder device: that will allow you to walk OVER the rapids and reach the other side safely;
- C) hydraulic, mechanized, and/or electrical digger that will reach deep into mine, scoop up some mud and ore, and deposit it into the sluice.
- D) hydraulic, mechanical or electrical sluice: (sorter) to separate the gold dust and nuggets from the ore and mud that you have dug out of your mine.

These prototypes must work efficiently, in all weather, and be maintained easily in the location where they are needed. They are to be built properly to scale so that if you strike it rich you can sell your designs to other prospectors. You need to keep an accurate account of the individual expenses of each prototype. Keep your prototype ergonomically sound, aesthetically pleasing, effective, and functional. Like the future Bon Jovi will say, "Plan for the future but do it in pencil."

Process:

To save money, and prevent future difficulties, you need to:

1. Show your signed contact to your governor general and get his/her official stamp.
2. Sketch at least 3 different designs for your prototype; discuss them with your fellow prospectors; and choose one
3. Purchase geometric paper and create detailed drawings with accurate measurements. This allows you to purchase only the exact materials you will need. Your drawings are to be in pencil so you can alter them as you progress through the building stages.
4. Begin to build the prototype.
5. As ideas are changed, make adjustments to design sketches in pen. Each new colour of pen indicates different time slots that new ideas occur.
6. Complete building of prototype (sketches and geometric drawing).
7. Test prototype several time
8. Make adjustments to prototype (& sketches).
9. Create a new correct version of the geometric drawing.
10. Create an isometric drawing (on isometric paper) of your prototype and enter all correct measurements so that they are clearly visible. It may help to learn about 'engineering drawing'.
11. Be prepared to explain how your device will work in all weather conditions found in Alaska and state who will make repairs when/if the machine breaks.
12. Be prepared to explain how mass production of your prototype will influence the social, economic, and environmental impact of the early 1900s.

You are now ready to present your prototype to any merchant. You may also decide to present to interested prospectors and to the Hudson Bay Company representatives. Good luck and may you strike it rich!

Remember to use appropriate vocabulary. Calculate mechanical advantage if possible.

Resources:

Student page - http://www.ldcsb.on.ca/schools/cfe/RPT/RPT_GoldRush/student.html

Parent page - http://www.ldcsb.on.ca/schools/cfe/RPT/RPT_Storybook/parent.html