UNIT 5 – Processes

Reading 1

Skills:

- Details
- Understand topics
- Associate information
- Understand meaning of words

Getting started: Think about a tough process in programming. Which is it?

A. Read this article and put these headings in the correct place:

Collecting the rocks	Controlling the movement
Strengthening the roof	Cutting the rock surface
Moving the cutter	Supplying the electricity

HOW DOES A TUNNEL DRILL WORK?



Have you ever **wondered** how tunnels are made? Something you may imagine is what great work of engineering it must be, and you are right. Making a tunnel implies an arduous process that requires careful planning, skillful personnel, and advanced technology. As far as technology is concerned, one of

LIVEWORKSHEETS

the most important tools is a drill, the piece of equipment that will help engineers dig the tunnel. But how does a standard drill work?

1. _____

Perhaps, the most important part of a drill is the cutter. The face of the cutter, which is made of steel, has 85 teeth, and each tooth is 60 cm long. The cutter face rotates about seven times a minute. When it rotates, the teeth cut large circles into the surface of the rock. They spin freely to carve concentric circles in the rock, and in this process, they produce more than 1,600 tons of **rubble** an hour. The face of the drill contains a small door through which workers can crawl to replace the 15 or so cutters that **wear out** every day.

2. _____

Then, pieces of rock fall to the ground, and they are gathered by large scoops (tractor-like vehicles used to remove soil) located in the side of the head. After that, the rocks are dropped into **chutes**. When the cutter face rotates upwards, the rocks fall onto conveyor belts. They are then carried to the **rear** of the machine.

3. _____

Hydraulic cylinders attached to the drill´s spine push the body of the cutter slowly forwards. As it moves forwards, steel shoes move outwards and grip the tunnel walls to stabilize the drill. At the same time, two legs push down and **lift** the machine off the floor.

4. _____

Fifteen electric motors supply the machine with 6,375 horsepower. The power is connected to the cutters by means of a 13,800-volt cable.

5. _____

There are two drills attached to steel arms. These are located immediately behind the cutters. When the machine moves forwards, holes are drilled into the roof of the tunnel. Then the holes are filled with **bolts** and cement. This **strengthens** the roof and works as a protective canopy.

6. _____

The machine operator sits in a cabin located at the center of the machine. There, he/she is in charge of controlling all the functions, including its speed and direction. Additionally, video cameras help supervisors monitor the cutter and the tunnel.

**Adapted from Longman Technical English 2*

LIVEWORKSHEETS

B. Match the red words in the text with the following definitions:

1. At or near the back of something.
2. Broken stones, etc. from a building or wall that has been destroyed or damaged.
3. To make somebody/something stronger, more powerful or effective.
4. To think about something and try to decide what is true, what will happen, what you should do, etc.
5. To raise somebody/something to a higher position or level.
6. A tube or passage down which people or things (especially garbage) can slide.
7. A piece of metal like a thick nail without a point which is used with a circle of metal (= a nut) to fasten things together.
8. To make something no longer able to be used, usually because it has been used too much.

What do you think?

Make a set of instructions about a process you know about. Then, describe it to the class.

LIVEWORKSHEETS