18 Which is better?

Comparing benefits

1 Think of some places where robots are used. What are they used for? Does your company use robots? (What for?) Read these two stories about robots and answer the questions.

Peter Knigge used to get up early every morning to milk the cows on his farm in Wisconsin, USA. Then he bought two robots. Now the robots milk the cows three times a day. That's more often than Peter could milk them, so the cows produce 10 per cent more milk and the farm is more productive. But the best thing is that Peter can stay in bed later in the mornings.

1 Is milk production higher or lower?
2 Is Peter getting up earlier or later?

The Japanese company NEC used robots to assemble its mobile phones. Then it found that it could do the job more efficiently if it used people. 'Using robots was good, but now we're discovering that using people for multi-task work is faster', said Mr Saitama, the company president. NEC now uses people and assembles the phones 45 per cent faster.

1 Were the robots good at the job?
2 Who assembled the phones more efficiently: robots or people?

Comparing how we do things

Use *more* / *less* + adverb.
People do the job ***more efficiently****.*
Robots do the job ***less efficiently****.*

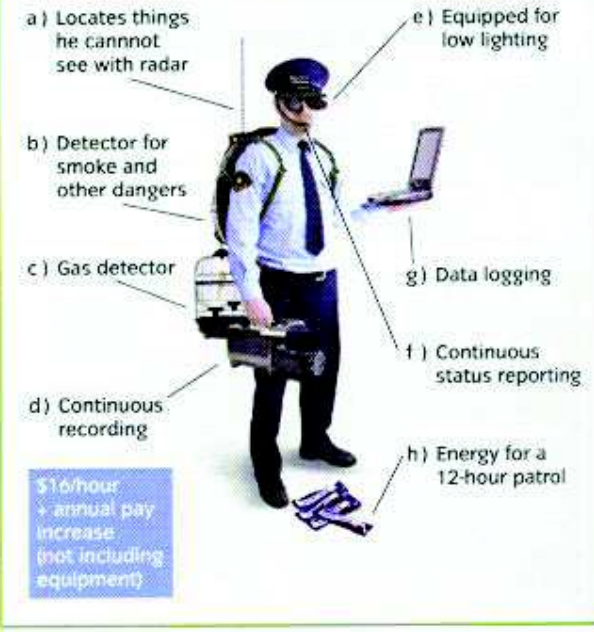
Irregular forms:	*well,* ***better***	*badly,* ***worse***
	fast, ***faster***	*hard,* ***harder***
	early, ***earlier***	*late,* ***later***

2 Complete these sentences. Use a comparative adverb.

We operated efficiently before, but with our new computer system we operate more efficiently.

1 This machine prints fast, but the new machine .....
2 My car ran well before, but after the engine tune up, it .....
3 This blade cuts badly, but that rusty old blade .....
4 I get up early most mornings, but I have more jobs to do on Mondays so I .....
5 I drive carefully, but my wife .....
6 We finished work late today, but yesterday we .....
7 My boss works hard, but I .....

3 What kind of robot is this advertisement for? Why does the human guard have lots of equipment? What kind of equipment is it?



4 Label the equipment. Write the letters in the boxes.

1 wall-penetrating radar ☐
2 a laptop computer ☐
3 an environmental monitoring system ☐
4 a video camera ☐
5 night-vision lenses ☐
6 a microphone ☐
7 a bird in a cage ☐
8 lots of chocolate bars ☐

5 Read about some of the things the Sentrybot does. Can the human guard do the same things?

- Sees in poor light
- Makes continuous status reports
- Quickly detects smoke and other danger
- Detects gas fast
- Accurately logs data
- Records everything it sees
- Sees through solid walls
- Patrols continuously for 12 hours at a time

Reliable protection from **Sentrybot**

It's a little too good to be human.

$15/hour first 12 months
$2.00 an hour after that
(includes maintenance and installation)

6 Work with a partner. Ask and answer questions about the human guard. Use the information in **5**.

A *Can he see in poor light?*
B *Yes, he can. He has night-vision lenses.*
A *Can he make continuous status reports?*
B *Yes, he can. He has ...*

7 The Sentrybot can do the same things as the human guard, but which one is better? Do you agree (A) or disagree (D) with these statements?

1. You can patrol a warehouse more cheaply with human guards.
2. It doesn't matter if a robot gets damaged. But if a human guard gets injured, it's more serious.
3. A robot moves more slowly than a human guard.
4. Human guards are less reliable than robots.
5. Robots work harder than human guards.
6. It takes longer to program a robot than it takes to train a human guard.
7. A human guard has a better memory than a robot.
8. A robot is more flexible and adaptable than a human.
9. You can patrol a warehouse more efficiently with robots than with human guards.
10. A robot isn't as intelligent as a human being.

Compare your opinions with some other students. Do you agree?

Weighing alternatives

1 Which is the most difficult issue in your job?

1  Time – meeting deadlines and avoiding delays

2  Quality – meeting specifications and avoiding mistakes

3  Cost – keeping to budget and finding ways to save money

2 18.1 Listen to three different conversations. What problems are the people trying to solve? Are they worried about time, quality, or cost?

3 18.1 Listen again and answer these questions.

Conversation 1

1 What's the problem with the gears?
2 Why can't they use plastic gears?
3 What do they decide to do?

Conversation 2

4 What's wrong with the fuel pump?
5 Why can't they buy another one?
6 Why can't they replace the system?

Conversation 3

7 What's the hold-up with the parts list?
8 What'll happen if they get another server?
9 What's the easiest solution?

Possibilities

After *if* we usually use the Present Simple to talk about the future.
If we get another server, it'll help. (NOT ~~*If we will get another server*~~)

What are we going to do if it ***breaks down*** *again?* (NOT ~~*if it will break down*~~)

4 Use the correct form of the verbs in the list to complete these sentences.

upgrade	be	work	have
outsource	use	cut	~~break down~~

Example
I'll call an engineer if the pump breaks down again.

1 If we ..... some work, we can do the job faster.
2 I'll look into it next week if I ..... time.
3 If we ..... the software, it'll speed things up.
4 If we ..... cheaper materials, we won't meet the specs.
5 I've changed the fuse, but I'll be surprised if it .....
6 We won't be able to replace the part if it ..... obsolete.
7 If we ..... some corners, we can save some money.

5 Discuss these time, quality, and cost questions with a partner and explain your answers.

Example
The easiest way to cook an egg is to boil it. If you don't boil it, you'll have to do more washing up.

1 What's the easiest way to cook an egg?
2 What's the most economical way to heat a house?
3 What's the most environmentally friendly way for you to get to work?
4 What's the safest way to pick up a heavy box?
5 What's the simplest way to open a jar with a tight lid?
6 What's the most effective way to remove blood stains from a shirt?
7 What's the best way to back up data on your PC?
8 What's the quickest way to get rich?

6 You are going to hold a meeting to solve some problems.

1 THE OIL TANK OUTSIDE THE ASSEMBLY SHOP
The tank is cracked and oil is leaking into the ground.

2 OFFICE TEMPERATURES
Your offices get too hot in summer and too cold in winter.

3 CAR PARKING
Local residents are complaining they can't park anywhere near your company during the day.

4 FORK-LIFT TRUCK ACCIDENTS
Five of your employees have been seriously injured by fork-lift trucks in the last three months.

5 QUEUES' IN THE CANTEEN
Too many people are going for lunch between 12.00 and 12.30. There aren't enough tables and people are standing in queues for ten minutes or more.

6 EMPLOYEES' LEVEL OF ENGLISH
Your company repairs and services engines. The manuals are all in English, but most of your employees can't understand them.

7 THE STRIKE
There is a railway strike so you cannot ship your products to your customers by rail. Your warehouse is full.

8 THE BIKE SHED
You are going to build a shed for your employees' bicycles, scooters, and motorbikes. You need to decide what materials to use.

9 COCKROACHES
There are cockroaches in the staff restrooms. You need to get rid of them and stop them returning.

queues **BrE** – lines **AmE**

1 Before you begin, read the problems and brainstorm some different ways to solve them. Think of solutions that:
   a are cheap
   b are quick and easy to do
   c will last a long time or are the best solution.

2 Decide which solutions you think are the best and prepare to explain why. Then work in a group with some other students. Hold the meeting and decide what to do about each problem.

7 Think of a time, quality, or cost problem you have at work. In small groups describe it to the other students. They should ask questions and suggest solutions.