UNIT 8  ITF Symbols  Lesson Plan 1

Activity

1  Introduction

T: Have you found any types of bar code apart from the 8- and 13-digit ones? (Ps give examples: library cards, hospital numbers, on packing cases, road signs, etc.)

T: Why isn’t either the 8- or the 13-digit bar code suitable for everything? (Not enough numbers, or too many numbers; no letters)

T: ITF symbols solve one of these problems – that 8- and 13-digit bar codes are too restrictive. For an ITF code you just need an even number of digits.

T: We first code each digit using a code with exactly two 1s and three 0s.

For example, 1 1 0 0 0

Who can write another one on the board ...

1 0 1 0 0

T: Now find them all!

T: Who thinks they have all the solutions? How many? (10)

Write them on the board. (Order should be systematic.)

| 1 1 0 0 0 |
| 1 0 1 0 0 |
| 1 0 0 1 0 |
| 1 0 0 0 1 |
| 0 1 1 0 0 |
| 0 1 0 1 0 |
| 0 1 0 0 1 |
| 0 0 1 1 0 |
| 0 0 1 0 1 |
| 0 0 0 1 1 |

T: Now we are ready to use the code.

2  Reading codes

T: First note the 'start' and 'stop' guards. What else do you notice about these codes? (Numbers are coded in pairs)

T: That’s right; you have to have an even number of digits and these are taken in pairs.

Can you see how to read the number? (The black bars code the first number of the pair)

T: Yes; and how do you know if it is 1 or 0? ('1's are shown by wide bars; '0's by narrow ones)

T: Well done – so you can read off the code of the first number, 1 1 0 0 0 and you know this is 3.

T: Can you think of reasons why this system of coding is used? (It is efficient; error detection is easy)

T: Here are some examples for you to decode. Work in pairs with the person next to you. I’ll give you a few minutes for the first one.

T shows OS 8.2 on OHP and gives each P a copy.

Interactive discussion on the procedures, leading to Ps deducing the design rules rather than T just dictating them.

Copy of OS 8.4 for each P.

Before this lesson, T should ask Ps to look out for types of bar codes other than 8- or 13-digit EANs.

T and Ps have an interactive discussion about the need for other types of bar codes (e.g. larger numbers, coding letters – see Unit 9).

T writes on board or shows OS 8.1

Ps have 5 minutes for this; T should encourage them to think logically and systematically. T praises when list is complete.

Class agree/disagree; review of their answers. Praising when all 10 have been agreed on.
**Activity 2 (continued)**

T: Who has decoded the first example? Show us on the OS and describe what you are doing.

P: Reading the thicknesses of the bars gives:

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T: Well done; who agrees (disagrees)? Who would like more help? Now try the second example.

T: Who can give us their answer?

P: 0501 2345

T: Well done.

30 mins

### Making a code

T: Now we’ll reverse the process and make a code from a number. We’ll use a grid to help us.

The first number to code is 4 3 4 7

T: Who can tell us how to start? *(Ps respond)*

T: I’ll give you 5 minutes to complete this.

T: Who can give us a solution?

P (writing on OS and explaining to class):

Putting into code in pairs, alternatively, gives

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T: Very good. Now start the next number, 4 4 1 0 3 5

45 mins

### Homework

Complete the coding of 4 4 1 0 3 5.