The future of computers?
by Phil Wade

Lesson Share TEACHER'S NOTES

Warmer

1. Hand out Worksheet 1 and put students into pairs or small groups to discuss the two questions. Give them a minute or two to do this and ask a few students to report back to the class.

Key abbreviations

2. Give students two to three minutes to work out what the abbreviations stand for, then elicit their answers on the board and make any necessary corrections.

   Key a:
   CPU = Central Processing Unit
   GPU = Graphics Processing Unit
   HDMI = High-Definition Multimedia Interface
   LAN = Local Area Network
   LEDs = Light-Emitting Diodes
   MB = Megabyte
   RAM = Random Access Memory
   RCA = Radio Corporation of America
   SD = Secure Digital
   USB = Universal Serial Bus

3. Allow students a minute or two to complete the diagram in their pairs / groups and check the answers as a class.

   Key b:
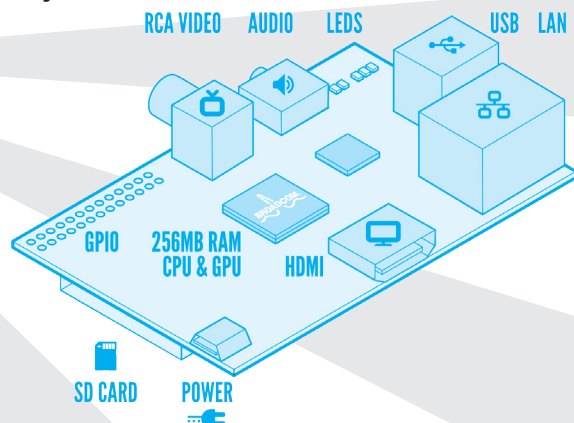
4. Tell students to brainstorm their answers to the questions in part c. Ask a few individuals for suggestions and write them on the board.

Reading

5. Hand out Worksheet 2, which will reveal that the diagram in the previous exercise relates to the Raspberry Pi computer. Acknowledge any students whoe correctly guessed this.

6. Allow students several minutes to read the review and compare the facts with their answers from the previous exercise. Assist with any unknown vocabulary.

Comprehension check

7. Tell students to reread the review and answer the questions. Ask students to work in their pairs / small groups and ask each other the questions. Check the answers as a class.

   Key:
   1. credit-card sized; 2. a high-definition screen (HDTV) or a traditional TV; 3. via the LAN port; 4. for more storage and to carry your files / operating system around; 5. it has cost-saving components, e.g. a low amount of RAM

Discussion

8. Put the students in different small groups of three to four and ask them to discuss the questions for five minutes, before discussing them together as a class.

Project

9. Explain to students that they are going to give a two-minute presentation. Give them ten minutes to complete the task in their new groups. If they have laptops, tell students that they can use them if they wish. Alternatively, give them some A3 paper and pens to work with.

10. After each group has finished presenting, allow time for questions from the other groups. You could take this opportunity to award a prize for the best new design, voted for by the class.

Credits: Published with permission of Raspberry Pi (www.raspberrypi.org); Image: Paul Beech

1 Warmer

Answer the following questions.
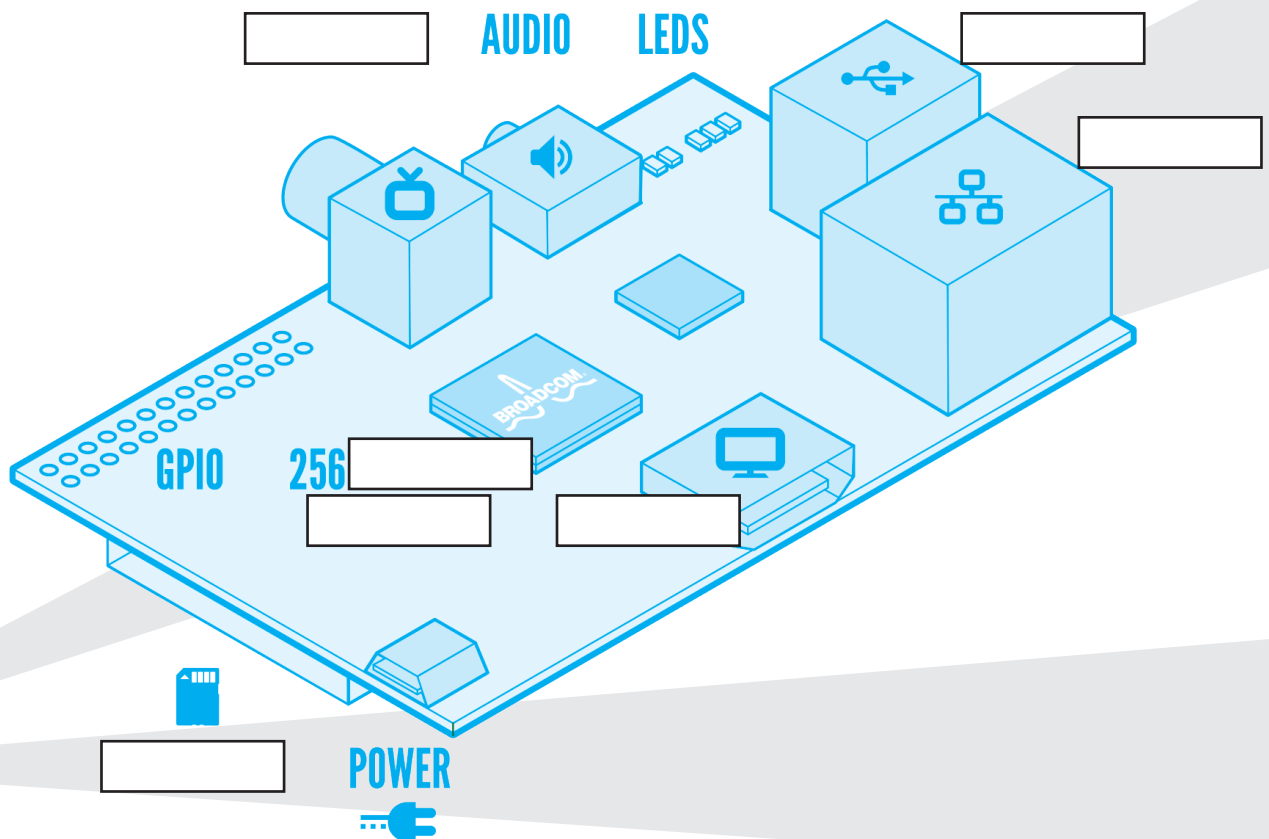1. What computer / tablet / desktop / iDevice do you use and why?
2. What is your opinion of traditional desktop computers?

2 Key abbreviations

a. How many of these abbreviations do you know?

CPU & GPU	HDMI	LAN	LEDs
MB RAM	RCA video	SD card	USB

b. Match the abbreviations to the components in the diagram.
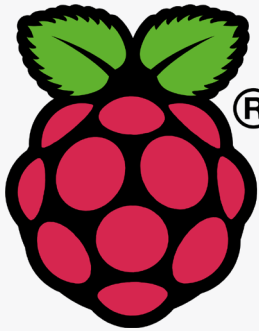

AUDIO   LEDS

GPIO   256

POWER

c. Answer the following questions about the diagram.
1. What is this device?
2. What can it do?
3. How much is it worth?

3 Reading

Read the review and compare with your answers to the previous exercise.

Technology review
® Raspberry Pi

It may not look like a traditional computer but this credit-card sized device, released in February 2012, may be the future of computers.

Consisting of just a single circuit board with only a handful of components, the Raspberry Pi can do more or less anything a regular computer can. Thanks to its 256 MB of RAM and the central CPU and GPU, the device is capable of performing most ordinary tasks and playing modern games like Quake 3.

It has an HDMI port so you can connect it to a high-definition screen, while the older RCA video socket accommodates more traditional TVs. Internet access is also possible via the LAN port so users can download the free Linux operating system and software which goes with the Raspberry Pi. Extra hardware can be plugged in using the two USB ports, such as a keyboard or a mobile device.

The designers have included a useful SD card slot which means you can add more storage and carry around your operating system and files on a tiny card the size of a postage stamp. You will also find a couple of LEDs to show the device is on and functioning properly. Cost-saving components, such as a relatively low amount of RAM, mean that the Raspberry Pi's retail price is very attractive.

While an Apple laptop will cost you over €1,000 and a Dell laptop over €500, the Raspberry Pi retails at an unbelievable $25.

4 Comprehension check

Answer the questions below.
1. How big is the device?
2. Which screens can you connect it to?
3. How can you connect it to the internet?
4. What is the purpose of the SD card slot?
5. Why is it cheap?

5 Discussion

Discuss the questions below in small groups.
1. What is your opinion of the Raspberry Pi?
2. How well-designed is it?
3. How could it be improved?

6 Project

Design a new Raspberry Pi. Draw and label it with all the components, then present it to your class.
You should decide:
- what it will look like;
- which components it will have;
- which operating system and software it will use;
- how much it will cost.