Unit 11 Optical storage

1 CDs and DVDs

A In pairs, discuss these questions.

1 What do CD and DVD stand for?

2 What is the main advantage of using DVDs instead of CDs?

B How do you say these expressions in your language?

1 optical disc

2 laser beam

3 backward-compatible

C Paul (see Unit 4) wants to buy some blank discs. Listen to his conversation with the sales assistant and check your answers to A.

D Listen again and decide whether these sentences are true or false. Correct the false ones.

1 A DVD is an optical digital disc that can be used for video, audio and data storage.

2 The dimensions of a CD and a DVD are the same: 1.3 mm thick and 13 cm in diameter.

3 The data on a DVD is read with a laser beam.

4 A basic DVD can hold 3.7 gigabytes.

5 You need a hard drive to read DVDs.

6 DVD-Video discs can hold full-length movies.

7 A DVD Writer is not compatible with old CD-ROMs.

A DVD drive with disc

Note: dis**c** (optical media); dis**k** (magnetic storage media)

2 Optical discs and drives

A Read the text on page 53 and find the following.

1 the advantages and disadvantages of optical discs over magnetic disks

2 the storage capacity of a double-sided, dual layer DVD

3 the difference between a DVD burner and a DVD recorder

4 the feature of a portable DVD player which allows the user to play different formats

5 two possible successors to DVDs

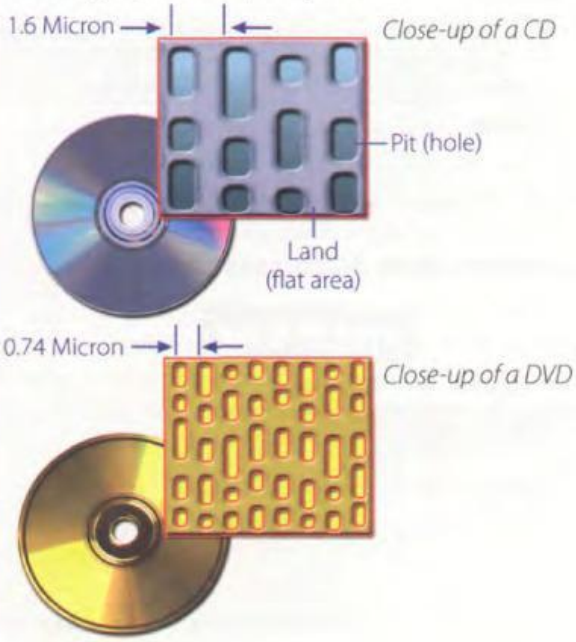
6 where the Blu-ray format gets its name from

Optical discs and drives

Optical discs can store data at much higher densities than magnetic disks. They are therefore ideal for multimedia applications where images, animation and sound occupy a lot of disc space. Furthermore, optical discs are not affected by magnetic fields, meaning that they are secure and stable, and can be transported through airport metal detectors without damaging the data. However, optical drives are slower than hard drives.

CDs and DVDs

At first sight, a **DVD** is similar to a **CD**. Both discs are 120 mm in diameter and 1.2 mm thick. They also both use a **laser beam** to read data. However, they are very different in internal structure and data capacity. In a DVD, the **tracks** are very close together, thus allowing more tracks. The **pits** in which data is stored are also smaller, so there are more pits per track. As a result, a CD can hold 650-700MB, whereas a basic DVD can hold 4.7GB. In addition, a DVD can be **double-sided** and **dual layer**, with a capacity of 17GB.



CDs come in three different formats:

- CD-ROMs (**r**ead-**o**nly **m**emory) are read-only units, meaning you cannot change the data stored on them (for example, a dictionary or a game).
- CD-R (**r**ecordable) discs are write-once devices which let you duplicate music CDs and other data CDs.
- CD-RW (**rew**ritable) discs enable you to write onto them many times, just like a hard disk.

DVDs also come in several formats:

- DVD-ROMs are used in DVD computer drives. They allow for data archiving as well as interactive content (for example, an encyclopedia or a movie).
- DVD-R or DVD+R can only be recorded on once.
- DVD-RW or DVD+RW discs can be erased and re-used many times. They are used to back up data files and to record audio and video.

The DVD drive used in computers is also called a **DVD burner** because it records information by burning via a laser to a blank DVD disc. However, a **DVD recorder** typically refers to a standalone unit which resembles a video cassette recorder. New DVD recorders can play all CD and DVD formats. There are also **portable DVD players** – handheld devices which let you watch movies or TV, play games and listen to music, wherever you are. They come with a built-in DVD drive and widescreen (rectangular 16:9 format) LCD display. They usually support **multi-format playback** – that is, they can play many file formats, including DVD-video, DivX, CD audio discs, MP3 music and JPEG images.

HD-DVD and Blu-ray discs

These two competing formats are expected to replace current DVD as the standard for watching movies at home. On one side are Toshiba, Microsoft and the DVD Forum, who support the **High Definition-DVD** (**HD-DVD**). Sony, Panasonic, Samsung, JVC and many movie studios are behind the **Blu-ray** format.

A Sony Blu-ray disc

A Blu-ray disc has a capacity of 25GB (single layer), 50GB (dual layer) and 100GB (four layer). Unlike DVDs, which use a red laser to read and write data, Blu-ray uses a blue-violet laser, hence its name. Blu-ray discs can record and play back high-definition television and digital audio, as well as computer data.

B Read the text again and make notes about the features of CDs, DVDs and Blu-ray discs.

	Capacity and formats	Possible uses
CD		
DVD		
Blu-ray		

3 Language work: connectors 2

A Look at these extracts from the text and put the words in *italics* into the correct column of the table.

1 They are *therefore* ideal for multimedia applications …
2 **Furthermore**, optical discs are not affected by magnetic fields.
3 **However**, they are very different in internal structure and data capacity.
4 **As a result**, a CD can hold 650–700MB, **whereas** a basic DVD can hold 4.7GB.
5 **In addition**, a DVD can be double-sided and dual layer …

Indicating addition	Making contrasts	Explaining the results or effects of something

B Look at the HELP box and check your answers. How do you say these connectors in your language?

C Choose the correct word in brackets to complete these sentences.

1 (Although/Consequently) CDs and DVDs are similar in size and shape, their data structure is very different.
2 DVDs hold more data than CDs. The pits burnt into the disc are smaller than on a CD, and the tracks are closer together. (On the other hand / As a result), DVDs can have up to four recording layers.
3 A Blu-ray disc drive costs a lot of money (but/so) you should use it carefully.
4 Blu-ray is expected to replace DVD over the coming years (because/besides) it offers much greater storage capacity.
5 Both Blu-ray (and / in addition) HD-DVD devices are backward-compatible with current CDs and DVDs, meaning you can play your old discs on the new players.
6 Sony has invested millions of dollars in the development of Blu-ray technology. The success of Blu-ray is (whereas/ therefore) vital for the company's future.

HELP box

Connectors 2

In addition to the uses of connectors covered in Unit 8, we also use connectors for the following purposes:

- Indicating addition
  furthermore **in addition**
  besides **moreover**
  and
- Making contrasts
  however **whereas**
  although **but**
  on the other hand
- Explaining the results or effects of something
  therefore **as a result**
  so **thus**
  consequently **because**

4 Choosing storage devices

In pairs, look at the products in the computer catalogue and choose the most suitable device for the purposes (1–6). Give reasons for your choices. Try to use some connectors from the HELP box on page 54.

1 to keep the operating system and the programs on a home computer
2 to watch a movie on a plane or in the back seat of a car
3 to hold your favourite photos and music
4 to make backup copies and to transport files between computers in a big company
5 to hold historical records in the National Library
6 to read, write and re-write high-definition video and TV

Seagate hard drive
Superfast 8ms hard drive. Capacity ranges from 80GB to 1TB.

Iomega portable hard drive
160GB, 2.5" external hard drive. An affordable way to back up all your data, from business documents to emails.

LaCie DVD drive
16x DVD writer with free Nero DVD burning software. Can play and record both DVD+R and DVD-R discs, plus their rewritable counterparts, as well as all types of CD.

Panasonic portable DVD player
8" portable LCD DVD Player with Car Kit. Compatible with DVD-Video, CD, JPEG image CD and MP3-formatted audio CD.

Sony Blu-ray disc drive
Sony's Vaio AR laptop is the first portable Blu-ray studio, which includes a Blu-ray disc drive and a TV tuner, alongside a 17" widescreen display and a 2GHz Intel Core Duo processor.

Toshiba USB flash drive
High-speed 16GB pen drive with a built-in MP3 player. Plugs directly into any USB connection.

Sony's Vaio AR laptop

Useful language

For this use, the … is the most appropriate because …

The … has … so I'd choose it for …

However, … is good for … because …

In a big company, it would be a good idea to …

Well, that depends on …

I agree / I disagree.

5 Format wars

Read these posts from a forum about the topic of 'Blu-ray versus HD-DVD' and then add your response, giving your opinion on the topic.

HD-DVD and Blu-ray formats display movies in full high-definition resolution, but they are incompatible; HD-DVD cannot play the Blu-ray discs, and vice versa. People say that Blu-ray discs can hold more data and video, but that they are more expensive and complex. Who will be the winner in this format battle?

Consumers ezine, March 10th at 5:40 pm

Samsung and Toshiba are selling hybrid players that can play both formats. Sony and NEC are also releasing dual-format players. This may be the end of the format war. Will both sides produce a unified standard?

News.net, March 15th at 12:30 am

I hate format wars. This situation reminds me of the Beta versus VHS war in the early days of the video market, and more recently DVD-R versus DVD+R. I don't want to invest money in equipment that quickly becomes obsolete or incompatible. Why can't someone create a universal player that plays all formats, from CDs to high-definition video discs?

Posted by Adam, March 15th at 4:15 pm

Name:

Submit comment