

## DVDs



*Leaving Certificate students are using a DVD featuring Shakespearean plays to quickly progress through scenes in each play. They are doing so in order to compare and contrast specific themes.*

### What is a DVD?

DVD is an acronym for Digital Versatile Disc. It is very similar in appearance to a compact disc, but has considerably more storage capacity. The commonly available DVD holds 4.7GB of information on one layer, or enough for a 2-hour movie, audio or other digital information. Dual Layer recording allows discs to store significantly more data, up to 8.5GB per disc, compared with 4.7 GB for single-layer discs.

Using MPEG-2 video compression — the same system that will be used for digital TV, satellite and cable transmissions — it is quite possible to fit a full-length movie onto one side of a DVD.

In a computing context, however, DVD means more than just movies. The unprecedented storage capacity provided by DVD lets application vendors fit multiple CD titles (phone databases, map programs, encyclopedias') on a single disc, making them more convenient to use. Developers of edutainment (education/entertainment) and reference titles are also able to use video and audio clips more liberally in their products.

### Technical Considerations

To play a DVD disc, a DVD player is required. They fall into two categories: (1) home DVD players that play movies, and (2) DVD drives in PCs that read DVDs containing digital information of any sort, e.g., audio, video, multimedia content, etc.

#### Home DVD Players

DVD home players are primarily focused on playing video and films

- DVD players allow users to change languages at the switch of a button — normally the choice is English, French or Spanish. A choice of 32 different language subtitles with charts, DVD/graphics and icons may be included.
- DVD players allow parents to control the age guidance settings and to set up a password system to avoid any abuse of the system.
- One of the most impressive features of DVD movies is the choice of different camera angles, from long shots to close-up shots, and from low to high angles.
- There are a vast array of features available on different home DVD players but suffice to say that many of these features are gimmicks and are not worth extra money being spent on them. Other features, such as component video output or progressive scan, are very advanced features but they are really only useful if the TV being used with the player is capable of supporting them.

#### DVD Drives in PCs

Many computers being manufactured today are being shipped with DVD drives, rather than CD-ROM drives. Computer DVD drives have the great advantage of being backward-compatible. This means that they can play CD-ROMs and audio CDs, as well as play and record DVDs.

## DVD Writing Formats and Hardware

To create or write a DVD, a writeable DVD drive is required in the PC. Writeable DVD/CD drives now ship as standard in many PCs. Furthermore, the variety of formats that can be used when writing a DVD adds another layer of complexity to the matter, as not all formats are supported by all DVD drives. Here is a brief overview of the various DVD formats available.

There are three competing DVD Recording standards, **DVD-R/DVD-RW** and **DVD+R/DVD+RW** have pretty similar features and are compatible with many standalone DVD Players and most DVD-ROMs while **DVD-RAM** has less DVD Player and DVD-ROM compatibility but better recording features.

### DVD-R and DVD-RW

DVD-R was the first DVD recording format released that was compatible with standalone DVD Players. DVD-R is a non-rewriteable format and it is compatible with about 93% of all DVD Players and most DVD-ROMs.

DVD-RW is a rewriteable format and it is compatible with about 80% of all DVD Players and most DVD-ROMs. DVD-R and DVD-RW supports single side 4.37 computer GB\* DVDs (called DVD-5) and double sided 8.75 computer GB DVDs (called DVD-10). These formats are supported by DVD Forum.

### DVD+R and DVD+RW

DVD+R is a non-rewritable format and it is compatible with about 89% of all DVD Players and most DVD-ROMs.

DVD+RW is a rewritable format and is compatible with about 79% of all DVD Players and most DVD-ROMs.

DVD+R and DVD+RW supports single side 4.37 GB DVDs (called DVD-5) and double side 8.75 GB DVDs(called DVD-10). These formats are supported by the DVD+RW Alliance.

### DVD+R DL

DVD+R DL or called DVD+R9 is a Dual Layer writeable DVD+R. The dual layered discs can hold 7.95 GB (called DVD-9) and dual layered double sides 15.9 GB (called dvd-18).

### DVD-R DL DL

DVD-R DL or called DVD-R9 is a Dual Layer writeable DVD-R. The dual layered discs can hold 7.95 GB (called DVD-9) and dual layered double sides 15.9 GB (called dvd-18).

## Higher Capacity DVDs

In the future DVD capacities will increase to up to 50 GB per disk. Two different formats are vying to be the accepted industry standard. These are Blu-Ray and HD-DVD.

A Blu-ray Disc (also called BD) is a high-density optical disk format for the storage of digital media, including high-definition video. The name Blu-ray Disc is derived from the blue- violet laser used to read and write this type of disc.

Because of its shorter wavelength, substantially more data can be stored on a Blu-ray Disc than on the DVD format, which uses a red, 650 nm laser. A single layer Blu-ray Disc can store 25 GB, over 5 times the size of a single layer DVD at 4.7GB. A dual layer Blu-ray Disc can store 50 BB, almost 6 times the size of a dual layer DVD at 8.5GB.

The HD DVD can store about three times as much data as its predecessor (15 GB per layer instead of 4.7 GB). The HD DVD standard was jointly developed by Toshiba and NECC.

**Purchasing Considerations**

Schools should check that if purchasing a DVD player/recorder that it supports DVD-RW and DVD+RW. Support for DVD RAM is not generally required in schools unless one wants to have studio quality recordings. Check if Dual Layer recording is supported as this allows storage of up to 8.5 Gigabytes per disc, compared with 4.7 Gigabytes for single-layer discs.

The price of standalone DVD players varies. Entry-level DVD players (without recording capability) start at €50 whereas DVD Players – recorders average cost is €250. A spindle of 25 recordable DVDs can be purchased for €10 (See Advice Sheet 7 for more information about CDs.)

**Related Web Sites****How Stuff Works**

<http://electronics.howstuffworks.com/dvd.htm>

The article provides a comprehensive introduction to DVD, how they work, formats, video and audio use, and includes FAQs and model types.

**Video Help**

[www.videohelp.com/dvd](http://www.videohelp.com/dvd)

This is an excellent web site to assist in the understanding for DVD technical details and formats.

**Wikipedia**

<http://en.wikipedia.org/wiki/DVD>

This link provided a good introduction to DVDs, their history and how they have evolved to date, and includes formats, links, and forums.

*Note: While the advice sheets aim to act as a guide, the inclusion of any products and company names does not imply approval by the NCTE, nor does the exclusion imply the reverse. The NCTE does not accept responsibility for any opinions, advice or recommendations on external web sites linked to the NCTE site.*

This Advice Sheet and other relevant information are available at:

[www.ncte.ie/ICTAdviceSupport/AdviceSheets](http://www.ncte.ie/ICTAdviceSupport/AdviceSheets)