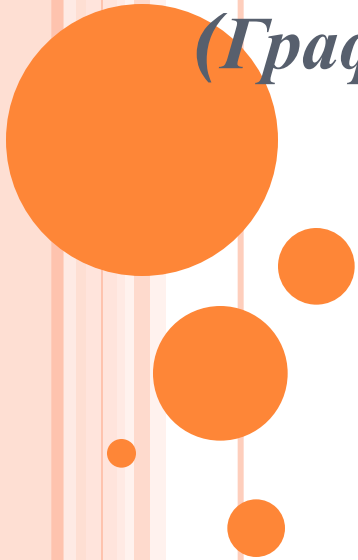


ENGLISH

Topic: Graphics and design
(*Графика и дизайн*)



Computer graphics

Computer graphics are pictures and drawings produced by computer. There are two main categories:

Raster graphics, or **bitmaps**, are stored as a collection of pixels. The sharpness of an image depends on the density of pixels, or **resolution**. For example, text or pictures that are scaled up - that is, made bigger - may show **jagged** edges. Paint and photo-editing programs like Adobe Photoshop focus on the manipulation of bitmaps. Popular raster formats are **JPEG**, **GIF** and **TIFF**.

Vector graphics represent images through the use of geometric objects, such as lines, curves and polygons, based on mathematical equations. They can be changed or scaled without losing quality. Vector data can be handled by drawing programs like Adobe Illustrator, Corel Draw or Macromedia Freehand. **EPS** is the most popular file format for exchanging vector drawings.

Almost all computer users use some form of graphics. Home users and professional artists use image-editing programs to manipulate images. For example, you can add **filters** (special effects) to your favourite photos, or you can **composite** images. Compositing is combining parts of different images to create a single image.

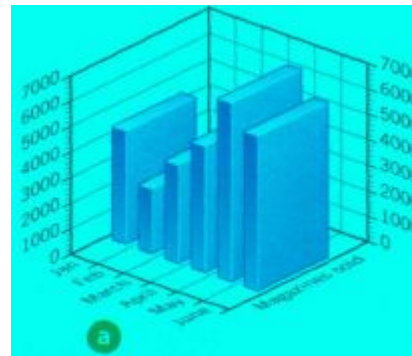
Graphic artists and designers use drawing programs to create freehand drawings and illustrations for books or for the Web. Businesspeople use presentation graphics to make information more interesting visually - graphs and diagrams can be more effective ways of communicating with clients than lists of figures. Electrical engineers use graphics to design circuits in order to present data in a more understandable form. Mechanical engineers use CAD (Computer Aided Design) software to develop, model and test car designs before the actual parts are made. This can save a lot of time and money.

CAD is also used in the aerospace, architecture and industrial sectors to design everything from aeroplanes and buildings to consumer products. Designers start a project by making a **wireframe**, a representation showing the outlines of all edges in a transparent drawing. They then specify and fill the surfaces to give the appearance of a 3-D solid object with volume. This is known as **solid modelling**. Next, they add paint, colour and filters to achieve the desired 'look and feel': this is called **texturing** the object. Finally, they **render** the object to make it look real. Rendering includes lighting and shading as well as effects that simulate shadows and reflections.

Computer art, or **digital art**, is used in adverts and TV programmes. Artists and scientists use special graphic applets to create amazing **fractals**. Fractals are geometrical patterns that are repeated at small scales to generate irregular shapes, some of which describe objects from nature. Government agencies use **GIS (Geographic Information Systems)** to understand geographic data and then plan the use of land or predict natural disasters. Cartographers use GIS to make detailed maps. Animators use **computer animation** software to create animated cartoons or add effects in movies and video games.

1. ОТВЕТЬТЕ НА ВОПРОСЫ

1. Which of these graphics are three-dimensional (3-D)?
2. What are the advantages of creating 3-D images?
3. Which types of professional might use the computer graphics (a-d)?
4. Who else uses computer graphics in their job? How do they use them?



2. СООТНЕСИТЕ ПОНЯТИЕ И ОПРЕДЕЛЕНИЕ

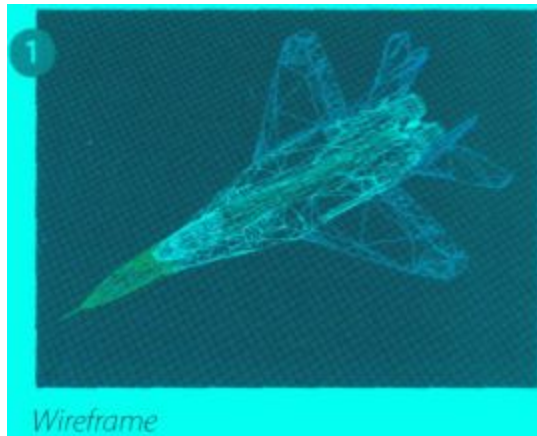
- | | | | |
|----|------------|----|--|
| 1. | Resolution | a) | Special effects that can be applied to pictures |
| 2. | Jugged | b) | A technique that generates realistic reflections, shadows and highlights |
| 3. | Filters | c) | Geometrical figures with special properties |
| 4. | Wireframe | d) | Irregular or uneven |
| 5. | Rendering | e) | The number of pixels in an image |
| 6. | Fractals | f) | The drawing of a model by using features like edges or contour lines |

3. СОЕДИНИТЕ ДЕЙСТВИЯ С ПРОГРАММНЫМ ОБЕСПЕЧЕНИЕМ

- | | | | |
|----|---|----|--|
| 1. | To edit or retouch photos | a) | Computer animation software, for example 3-D Studio Max |
| 2. | To create illustrations and drawings for magazine | b) | GIS software, for example ArcView |
| 3. | To prepare slideshows for training sessions or conferences | c) | Presentation software, for example PowerPoint |
| 4. | To make mechanical designs and architectural plans | d) | A CAD package, for example AutoCAD |
| 5. | to create dynamic simulations and special effects for films, TV, advertisements and games | e) | Vector graphics software, for example Freehand |
| 6. | To analyse geographic data and make maps | f) | A paint and image-editing program, for example Photoshop |



4. НА КАРТИНКАХ ПРЕДСТАВЛЕНЫ ЭТАПЫ СОЗДАНИЯ САМОЛЕТА С ПОМОЩЬЮ КОМПЬЮТЕРНОГО ПРОГРАММНОГО ОБЕСПЕЧЕНИЯ. НАПИШИТЕ КРАТКОЕ ОПИСАНИЕ 2-4 ЭТАПОВ ПО ПРИМЕРУ ПЕРВОГО



This first image shows a wireframe model, probably made using CAD software. A wireframe is a drawing with edges and contour lines. The parts of the plane are shown in different colours (violet, green, blue, etc.)

Useful language

This picture shows ...

In this (next) stage ...

The designer has used ...

This stage is called ...

Rendering techniques include ...

As a finishing touch, ...

