

Educational toy essay sample



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Educational Toys are used in a variety of situations. You need to identify an area where educational toys are used and identify a problem that needs to be solved

Objective 1

Task No 1 Time: 30 minutes

Investigate what is meant by Educational Use a dictionary and write a definition of Educational. Draw a spider diagram with Educational at the centre. Investigate what is meant by Toys. Use a dictionary and write a definition of Toys. Draw a spider diagram with Toys at the centre.

Educational Toy Spider Diagram may include: machines, mechanisms, lever, wheel, axle, pulley, automatic, lacking originality, sound, colour, texture, numbers, alphabet, counting, energy, helpful, environment, man made etc. Toys Spider Diagram may include: Entertainment, fun, interesting, play, by watching others, sensory experiences, experiment, imitating, using models, educational, therapeutic, attractive, tactile, cost, materials, etc. Select from the spider diagram appropriate words and write in sentences and or graphic forms.

Homework

Decide what type of educational toy you will research. Produce a well designed and presented front cover for the design folder. You may find a computer helpful and use cut and collage techniques. On each page of your folder include your Name, Centre Number, Candidate Number, Page Number.

Task No 2 Objective 1 Time: 40 minutes Lesson

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Decide what you are going to design and make and say why you think it is needed. For example. A educational toy..... Use drawings / photographs / words / graphs of other peoples ideas to help you describe: where the educational toy will be used. For example at home, in the street, by a playgroup, at school etc. who will use it. For example the age of children for which it is intended, or parents, or teachers. Write about where people could buy the educational toy you will design and make.

Homework

Look at Task 2. Use a computer to draft out your design brief. Write about – Who, what, where, when, why, how. Bring it to the next lesson and discuss it with your teacher before redrafting it for your folder.

Task No 3 Objective 1 Time: 20 minutes

Re edit your design brief describing what you are going to design and make. Remember that you need to think about who will buy the educational toy. Your design brief must say WHO the toy is for, WHERE it will be used, Why you consider there is a need for it, WHEN it is likely to be used and some indication of HOW it might achieve its purpose. For example. I am going to design and make a educational toy, that will be used to teach (person or group) when learning (What) The educational toy will be used (describe where / when it will be used). The educational toy will describe how it will work.

Homework

Collect information about different educational toys similar to the one you will design.

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Objective 2

Task No 4 Objective 2 Time: 30 minutes

Select from the ideas you collected for homework any that you think might help you generate ideas for the educational toy that you will design and make. For example:

toys that include mechanisms;

toys that include electronics and mechanisms.

Homework

Collect pictures / information on existing products that are similar to what you have identified on your spider diagram so that you can evaluate them.

Task No 5 Objective 2 Time: 60 minutes

Carry out some market research on the type of educational toy you will design and make. Write a questionnaire that you can use when talking to experts, people who will use the educational toy, children (appropriate age range) teachers, parents, people who make / sell educational toys. Use open type questions to find out what the requirements of the user are. Make sure you have collected information about size, materials, safety, etc. Look at

what is already on the market and show how these meet / do not meet the requirements of the user.

Homework

Use your questionnaire and ask as many people as you can before task 8

Task No 6 Objective 2 Time: 1 Hour

Evaluating existing products. Look at existing products to give you ideas about possible solutions to your design brief. Select 3 or 4 pictures, photographs, sketches of existing products that are similar to the ideas that you have thought about and for each picture write a comment using the questions below. What does the Educational toy do? Is it interesting / fun? Is it suitable for the intended age of the person who will use it? How does it work? Is it easy to use? Explain how you consider it makes a good educational toy. Comment on the material it could be made from. Comment on the selling price / value for money.

Homework

Draw a flow diagram to show how you planned your research.

Task No. 7 Objective 2 Time: 1 Hour

You now have to present your conclusions from what you have found out from your research and questionnaires. You must comment on all you have found out from your research. Include what you found out about:

interests of the user group;

range of educational toys, appropriate to your theme that are on the market;

suitability of educational toys on the market;

price range of educational toys.

types of materials used to make educational toys.

methods of manufacturing educational toys.

You need to present the information in the form of graphs, tables and text.

Homework

Produce graphs, tables text of results.

Task No. 8 Objective 2 Time: 1 Hour

Using the information you have analysed in task 7 write a detailed specification for your design brief. This is a list of criteria that you will think about when developing your ideas for your educational toy. You could comment on:

Its appearance, size, weight, shape, colour, texture;

Safe to use, small pieces, suitability of materials from which it is made, sharp edges;

Price of finished educational toys; maintenance costs;

Affect on the environment from choice of materials, use of energy for manufacture, dust / fumes in manufacture.

Homework

Finish off your specification

Task No. 9 Objective 2 Time: 1 Hour

You now need to describe how you will manage quality control of what you are making. You also need to think about how you could make several educational toys all exactly the same. Things you need to consider include:

choice and cost of materials;

cutting out materials to reduce wastage;

cutting out each piece to make sure it is exactly the right size;

the equipment needed to make each part of the educational toy;

methods of finishing each part to ensure that it is of the same high quality as ones sold in a shop;

the time taken to make each part;

the cost of each part / component;

packaging of the product for transport, point of sale.

You may find it easier to complete this work when you have finalised your design.

Homework

Sketch some ideas for your own design. Use notes to explain how they work.

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Objective 3

Task No. 10 Objective 3 Time: 2 Hours

Draw at least three different ideas using colour and notes to explain how each of the educational toys works. For each idea write about what is good about your design and what needs changing. For each idea comment on each point in your design brief / specification. Task 8 for example:

Who will use the educational toy?

What will it be used for?

Will it be interesting / enjoyable to use?

Is it good to look at (appearance, colour, size, shape?)

Is it safe to use?

Are there small pieces? Will they get lost? Have they got sharp edges?

Are the materials from which it is made easy to clean?

Can it be made for a price at which people will buy it?

Affect on the environment from choice of materials, use of energy for manufacture, dust / fumes in manufacture. Etc.

Homework

Show how your ideas have incorporated what you found out in your questionnaires.

Task No. 11 Objective 3 Time: 3 Hours

Select one of your ideas and develop your idea through drawings and models. You will need to make a model to see if your idea:

is a suitable size;

will work.

For example:

you could try out different sizes and shapes;

you could use samples of materials to try out different colours;

work out details of mechanism or circuits. Modify your drawings. Check your design using your specification to make sure it meets the your requirements. Explain why you have made changes / improvements to your design. Marks are awarded for the quality of presentation of your ideas in this section of your design folder. Using a computer to present some of your ideas will also gain marks.

Homework

Prepare for task 12

Task No. 12 Objective 3 Time: 1 Hour

Take your drawings, notes and models and talk about them with the people who will be using or buying your educational toy. Modify your ideas to include some of the suggestions from your discussion with potential users. Use notes / drawings to explain the changes you have made.

Homework

Write up the comments / ideas you obtained from the people who will be using or buying your educational toys.

Task No. 13 Objective 3 Time: 2 Hours

Make a presentation drawing of your idea. You need to present your ideas using models, drawings, text so that a person who is given the drawing will have a clear understanding of:

exactly what you have designed;

sequence of assembly;

how it will work or be used.

Marks are awarded for the quality of presentation of your ideas in this section of your design folder. You should use a drawing board and instruments wherever possible. Using a computer to present some of your ideas will also gain marks.

Homework

Use IT to enhance the quality of your presentation drawing.

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Objective 4

Task No. 14 Objective 4 Time: 2 Hours

Carry out an investigation to find out which materials will be the most suitable for your educational toy. For example try cutting some plywood, hardboard, MDF. Make a chart to show which is the easier to cut, finish, join. Try different finishes. For example water based wood dye, mat paint, gloss paint, felt tip pen. Record everything you have found out. Use tables, graphs as appropriate.

Homework

1. Write up the methods of research you used to gain information.
2. Write up the results of your investigations.

Task No. 15 Objective 4 Time 2 Hours

Try out different ways of joining materials. For example butt joints, panel pins, glue, dovetail joints. Different ways of joining / securing components that you might require for your model. For example the use of screw connectors, hinges, catches, soldering of wire, the use of printed circuit boards (PCB) the use of copper tape. Record everything you have found out Show clearly what decisions you have made.

Homework

1. Write up the methods of research you used to gain information.

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2. Write up the results of your investigations.

Task No. 16 Objective 4 Time 45 minutes

If your design is to be manufactured in quantity and all to the same high quality think about any changes you may need to make to:

choice of materials;

methods of construction;

types of finish.

Show clearly any changes and give reason for the changes.

Homework

Make sure your folder is up to date.

Task No. 17 Objective 4 Time 3 Hours

Make a working drawing, showing the size and shape of each part of your educational toys. The working drawing could be an orthographic drawing or an isometric drawing. It should show clearly all the parts and how they fit together. It should be fully dimensioned. You may need to ask your teacher to show you how to dimension a drawing. The working drawing must contain all the information needed to enable some one who is not familiar with your ideas to make your design.

Homework

Draw a three dimensional artists impression of the finished toy.

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Objective 5

Task No. 18 Objective 5 Time 1 Hour

Use a computer to write a cutting list. The cutting list should be in the form of a table and include every part / component needed for your educational toy. You should state all sizes are finished sizes. All dimensions in millimetres.

Homework

Begin to plan the order of making. You will need this for your next lesson.

Part No off length, width, thickness material cost

Side of toy 2 off 150 x 25 x 10 planed softwood 12p

Cam 1 off Catalogue number 7p

You should calculate the total cost of all components used.

Task No. 19 Objective 5 Time 2 Hours

Produce a flow chart showing the sequence of making. Start with the parts you will make first and work your way through making, assembling and finishing your educational toy. You need to include special equipment, materials and finishes at the point that they will be needed. Indicate points at which you will have to make decisions. Estimate the time that each part will take you to make and leave a space for you to fill in the actual time it

takes you to make each part. Make sure that you have all the materials you will need to start the project. Make a copy of your working drawing for use in the work shop.

Homework

Prepare a diary for task 20

Task No. 20 Objective 5 Time: 5 minutes each lesson

Keep a diary of what you do each lesson. Appendix 1. You may have to change your design because of the materials available or because you have found a better way of doing something. For each lesson make a note of:

what you achieved during the lesson;

any changes you made to your design and why you made the changes;

what you plan to do next lesson (use your flow chart to help with your planning.)

You will gain marks:

if you work safely;

if you do not waste material.

Homework

During the time you are making your model your homework will be examination questions covering materials and processes.

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Objective 6

Task No. 21 Objective 6 Time: 1 Hour

Write a summary of your diary detailing:

how your design developed;

the changes made to your design and why;

problems you overcame when making your design.

Homework

Prepare for Card 23

Task No. 22 Objective 6 Time: 60 minutes

Look again at your specification and original questionnaire. Rewrite the questionnaire so that you can use it with people who will be using your educational toy. Questions you could ask may include:

Does your educational toy do what you designed it for?

Is it easy to use? Is it attractive to look at?

Do you like the colour(s)? or what colour would you prefer?

Are all the parts a safe size?

Is it safe to use If it cost would you buy it?

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Are there any changes you would like to make? Ask about choice of materials.

Do you think it would be easy to keep it clean?

Would you prefer it made from

Homework

None set.

Task No. 23 Objective 6 Time: 1 Hour

Take your finished educational toy and try it out with people who will use it. Observe them using it and complete the questionnaires. Analyse the results from the questionnaires. Using each point in your specification comment on the effectiveness and success of the product.

Homework

Use the information to suggest improvements to your design

Task No. 24 Objective 6 Time: 1 Hour

Using the information gained from trying out your educational toy:

make a list of possible changes, with reasons, that you could incorporate if you made another toy;

make sketches of your revised ideas. Comment on any changes that could be made when making it to:

achieve a better finish; to make it easier to make;

use less material.

Homework

Make notes / sketches of how you would need to modify your model to enable it to be manufactured on a large scale.

Task No. 25 Objective 6 Time: 90 minutes

Think about the manufacture of your educational toy. Complete task 9.

Detail at what points in the manufacturing process you would have to carry out quality control. Check that your folder is in the right order. Make sure your Name, Centre Number, Candidate Number, and Page Number are on each page. Punch and tag the pages or use a spiral binder. Put a self adhesive label with your Name, Centre Number, Candidate Number on your practical work and any three dimensional models that you made.

Congratulations the folder is finished. I hope that you enjoyed your work. If you have produced a quality response to each card you will have achieved an A* for coursework.