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30th October 2013

10.1

Design Technology

Criterion A Investigate

# Criterion A: investigate/Aditya

Investigation is an essential stage in the design cycle. Students are expected to identify the problem, develop a design brief and formulate a design specification. Students are expected to acknowledge the sources of information and document these appropriately.

|  |  |  |  |
| --- | --- | --- | --- |
| **Level of Achievement** | 1–2 | 3–4 | 5–6 |
| **Descriptor** | The student **states** the problem. The student investigates the problem, **collecting** information from sources. The student lists some specifications. | The student **describes** the problem, **mentioning** its relevance. The student investigates the problem, **selecting and analysing**information from **some acknowledged** sources. The student **describes** a test to **evaluate** the product/solution against the design specification | The student **explains** the problem, **discussing** its relevance. The student critically investigates the problem, e**valuating** information from a **broad range** of **appropriate, acknowledged** sources. The student describes **detailed** methods for appropriate testing to **evaluate** the product/solution against the design specification. |
| **Identify the problem**  **Step 1. Part B** | State the problem | The student **describes** the problem, **mentioning** its relevance. | The student **explains** the problem, **discussing** its relevance. |
| **Terminology** | **State** Give a specific name, value or other brief answer without explanation or  calculation. | **Describes** Give a detailed account or picture of a situation, event, pattern or process.  parts and relationships, and to interpret information to reach conclusions. | **Explain** Give a detailed account including reasons or causes.  **Discuss** Offer a considered and balanced review that includes a range of arguments,  factors or hypotheses. Opinions or conclusions should be presented clearly and supported by appropriate evidence. |
| **Design Brief**  **Step 1. Part C** | A brief statement which covers 2 out of 4 requirements | A brief statement which covers 3 out of 4 requirements | A brief statement which covers all requirements: design goal, target audience, major constraints, design criteria. 🡪 5/6 |
| **Number of resources**  **Step 2-3** | Use 2 resources | Use 2 types of source | Use more than 2 primary source and secondary source |
| **Information Processing**  **Step 4** | The student investigates the problem, **collecting** information from sources. | | |
| At least 25% of the questions are answered thoroughly(3answers) | At least 50% of the questions are answered thoroughly  (5answers) | At least 75% of the questions is answered thoroughly  (8answers)🡪5/6 |
| The student investigates the problem, **selecting and analyzing** information from **some acknowledged** sources. | | |
| Few | Some | All |
| The student consider, with guidance, the value of sources of information. | | |
| Few | Some | All |
| **Terminology** | **Collect** | **Analyse** Break down in order to bring out the essential elements or structure. To identify | **Evaluate** Assess the implications and limitations; make judgments about the ideas,works, solutions or methods in relation to selected criteria. |
| **Design Specification**  **Step 5** | The student **lists** some specifications.  Less than 5 design specification | The students explain some design specification  5-8 design specification  (missing items that you find from the research) | The students list some design specification and discussing the relevancy to the problem and research  More than 8 design specifications |
| **Testing Method**  **Step 6** | - | The student **describes** a test to **evaluate** the product/solution against the design specification | The student describes **detailed** methods for appropriate testing to **evaluate** the product/solution against the design specification.5/6, missing the observation test |
| Level of Achievment | 5/6 | Comment | Aditya, for completeness and analyzing are good, however, for evaluating still need to be developed, still evaluating common issue. |

**COLLECTION OF INFORMATION**

1. Ergonomics

The term “Ergonomics” comes from two Greek words which are “ergon” meaning work, and “nomos” meaning law. These days, the term basically talks about the science of designing the job to fit the worker, not forcing the worker to fit the job. It’s the science to have the worker comfortable with the job. Ergonomics prioritizes the worker more than the job because the worker will work much better if he isn’t experiencing difficulties. The result will then be more productive. This involves all of the aspects of the job, which include physical factors and environmental factors. Physical factors are like how the job gives stress to places on joints, muscles, nerves, tendons, bones, etc. Environmental factors is how the job effects hearing, vision, general comfort, and health.

Sources:

"Ergonomics:  What Is It?" *Ergonomics:  What Is It?* Oklahoma State University, 2013. Web. 13 Oct. 2013. <http://ehs.okstate.edu/modules/ergo/What.htm>.

"What Is Ergonomics?" *Ergonomics Human Factors*. Institute of Ergonomics and Human Factors, 2013. Web. 13 Oct. 2013. <http://www.ergonomics.org.uk/learning/what-ergonomics/>.

1. Aesthetics

The term aesthetics involves our responses and our senses towards an object. If the object or product is aesthetically pleasing to you, it is pleasurable and you definitely like the thing. If the object or product is aesthetically displeasing to you, it is displeasurable and surely you won’t like it. And if you don’t like it, you won’t buy the product. Aesthetics involves all of our emotions, and senses – vision, hearing, touch, taste and smell. Vision involves color, shape, pattern, etc. Hearing involves loudness, beat, melody, etc. Touch involves weight, temperature, shape, etc. Taste includes sweetness, sourness, strength, etc. And smell involves sweetness, strength, pleasantness, etc. This all determines whether an object is aesthetically pleasing or not.

Sources:

"Ergonomics4schools - Aesthetics." *Ergonomics4schools - Aesthetics*. Samantha Porter, 2001. Web. 13 Oct. 2013. <http://www.ergonomics4schools.com/lzone/aesthetics.htm>.

Shelley, James, Shelley,. "The Concept of the Aesthetic." *Stanford University*. Stanford University, 11 Sept. 2009. Web. 13 Oct. 2013. <http://plato.stanford.edu/entries/aesthetic-concept/>.

1. Innovation

The term innovation is much related with the term product. They are always together, a product will always consist innovation. Basically though in a job or business, innovation means doing something different, new, and better that will make a positive impact. For instance, we can use the iPod as a great example. Steve Jobs is a perfect example for innovation. Originally music was heard through tapes, walkman, and other primitive devices. However, Steve Jobs then innovated that idea, that product and created the iPod. The iPod then made a positive influence in the world. That is innovation.

Sources:

"What Is Innovation?" *Encompass*. Encompass, 2013. Web. 13 Oct. 2013. <http://www.encompass-scotland.co.uk/innovation-in-your-business/innovation.html>.

"What Is Innovation? | Innovation ." *What Is Innovation?* Business.gov.au, 2013. Web. 13 Oct. 2013. <http://www.business.gov.au/BusinessTopics/Innovation/Pages/Whatisinnovation.aspx>.

1. How to make toy/game? (Different types of wood and Tools)

For games, creating a game requires the program. The powerpoint states that game maker is the most suitable program to make a game. Be sure to follow the steps from game maker to create a successful game and once the game is completed, be sure to test it out first.

For toys, before making the toy you should find out what kind of toy would fit your client. Once that information is received you will need to prepare the tools. For instance if the client wants a jigsaw puzzle. The tools which will be needed would be scissors, glue, saw, and a pen. While the materials which will be needed would be a thin wooden board (probably triplex) and printed pictures. What’s next would be to follow the method in how to create a jigsaw puzzle.

Sources:

Group 1 PPT

(<http://tlc.howstuffworks.com/family/educational-games3.htm> (jigsaw puzzle)

<http://tlc.howstuffworks.com/family/educational-games5.htm> (spool a word))

1. Why children play? (Function)

Children play because they are young and active. Playing is part of their lives, part of their learning process. It trains their motoric, intellectual and social skills. Playing helps them solves problems, make them learn from friends, and trains them to not be egotistic. Playing builds children as a person. For older children, they play to relieve stress, to seek motivation, and train their teamwork skills. Babies on the other hand play when they reach out. Playing helps them build their five senses.

Sources:

Group 2 PPT

(Gabriel, Julia. "Why Children Need To Play." *Julia Gabriel Centre*. n.p., n.d. Web. 28 Aug. 2013. , N.H., Wilton.

"Why Children Need to Learn to Play." *The Christian Science Monitor*. The Christian Science Monitor, n.d. Web. 28 Aug. 2013.)

1. What skills do preschoolers develop? (Function)

There are five main skills that preschoolers will develop. These skills are cognitive skills, social and emotional skills, speech and language skills, fine motor skills, and gross motor skills. Cognitive development skills is the ability of learning and solving problems. For example, math problems. Social and emotional development skills is the ability of interacting with other people, which includes helping themselves and also their self-control. Speech and language development skills is the ability to both understand and use language. Fine motor skills is the ability to use small muscles. For instance, using the hands and fingers to pick up small objects, to hold a spoon, to use a crayon and etc. Gross motor skills is the ability to use large muscles. For example learning to skip and jump is a gross motor skill.

Sources:

Group 3 PPT

(Leslie, Laurel. "How A Child Develops - Develop Skills." *How A Child Develops - Develop Skills*. Child & Adolescent Services Research Center (CASRC), n.d. Web. Aug. 2013.

Brooks, Alex. "Physical Development in Preschoolers." *Kidspot Australia*. N.p., n.d. Web. Aug. 2013.

*Dailymotion*. *Dailymotion*. N.p., Aug. 2012. Web. 01 Sept. 2013. <http://www.dailymotion.com/video/xgh1t2\_toddler-and-preschool-milestones-what-are-the-developmental-milestones-for-children-3-to-5-years-old\_lifestyle>.

Smith, Christina. Personal interview.29-8-13)

1. What are the toy/game sample? (Aesthetics, Cost, Costumer, Ergonomics, Size)

There are clearly hundreds of toy and game samples for children. The good samples are those that fits with the client’s needs. Toys and games that give them the good developing skills, and ones that are easily operated. For example a good toy sample would be a race car. When talking about ergonomics, race cars are easily used for children. They are small and all that needs to be done to play it is just giving it a push. For aesthetics, it actually depends on the person. However it should be pleasing because it is convenient, and easily used. The cost also wouldn’t be too cheap because it’s just a small race car. Unless of course the race car is a miniature Ferrari model. In conclusion a race car is a good toy sample for male children.

Sources:

Group 4 PPT

("ABCya.com | Kids Educational Computer Games & Activities." ABCya.com | Kids Educational Computer Games & Activities. N.p., n.d. Web. 27 Aug. 2013. <http://www.abcya.com/alphabet.htm[>.](http://www.abcya.com/alphabet.htm)

AINickelsFilms. "Lego Evolution by AINickelsFilms." Online video clip.*YouTube*. YouTube, 27 March. 2012. Web. 30. Aug. 2013.

[Learning color red and words:](http://www.abcya.com/alphabet.htm) (clicking the arrow) http://www.sheppardsoftware.com/preschool/colors/redflashcards.htm

[Preschool and Kindergarden. N.p., n.d. Web. 27 Aug. 2013. <http:/](http://www.sheppardsoftware.com/preschool/colors/redflashcards.htm)/www.sheppardsoftware.com/preschool/colors/redflashcards.htm>.

1. What are the toy/game safety? (Safety)

For toys, creating the toy will mostly involve carpentry. For carpentry there are a few safety rules. First of all always wear safety equipment and wear the appropriate attire. Avoid drugs or alcohol when working on carpentry. Avoid distractions, always work against the cutter and only use one extension chord. The attire includes: goggles, mask, and gloves.

For computer games, first of all the game should be child appropriate. It should be appropriate for the children’s age. There shouldn’t be any explicit images, music or any inappropriate parts in the game. Their playing time should be limited or they will get addicted and the purpose of the game will be lost. Lastly, parents should monitor the children playing the game from time to time.

Source:

Group 8 PPT

(Sarah Bean. "Dealing With An Angry, Acting-Out Child?" Empowering Parents. N.p., n.d. Web. 02 Sept. 2013. <http://www.empoweringparents.com/how-to-set- limits-around-video-game-use.php>.

Ben Kuchera. "ArsTechnica." ArsTechnica. N.p., 27 Dec. 2010. Web. 02 Sept. 2013. <http://arstechnica.com/gaming/2010/12/parenting-and-video-games/>.

AbbiPerets. "Set Rules for Kids and Video Game Play." SheKnowsPlus RSS. N.p., 19 Mar. 2010. Web. 02 Sept. 2013. <http://www.sheknows.com/sheknows-plus/articles/ 814304/set-rules-for-kids-and-video-game-play-1>.

Baylor, Chris. "Top Woodworking Safety Rules Every Woodworker Should Know." About.com Woodworking. About.com, n.d. Web. 27 Aug. 2013.

Maman. Personal Interview. 27 Aug. 2013.)

1. What are the carpentry/computer skills?

For computer skills, it all depends with the program you use. For example gamemakers, we first must understand the software first before learning the skills because every program is different. After understanding game maker for example, you will get the skills. However, there are basic skills like downloading images from the internet, locating images/songs in your computer for the game, those are all basic skills that are needed.

For carpentry skills, there are surely many carpentry skills. Ways to cut the wood, the best way to cut the wood. Those are all good skills. To have a good wood carving technique, the razor or saw needs to be sharp to carve efficiently. The carving will be done with the grain. After cutting the wood which could also be done with a knife, you should apply sandpaper. This way the wood will be smoother and it will look better.

Sources:

Group 6 PPT

(Goldstone, Will. Unity 3.x Games Development Essentials. Birmingham: Packt Ltd.

Perkasa, Angela.Email Interview.1 September 2013.

Russell. Brian. “Design and Technology Product Design”. Nelson Thornes LTD. 2009. 1 September 2013.

"How to Carve Wood." *, Wood Carving Techniques*. N.p., n.d. Web. 02 Sept. 2013.

"Michael Keller Woodcarving." *Michael Keller Woodcarving*. N.p., n.d. Web. 02 Sept. 2013.

 "Basic Wood Carving Techniques." *- Fundamentals Of Woodworking*. N.p., n.d. Web. 02 Sept. 2013.)

1. What are carpentry/computer safety rules? (Safety)

Carpentry Safety Rules:

1.Always wear safety equipments.

2.Wear appropriate attire.

3. Avoid drugs or alchohol

4. Avoid distractions.

5. Always work against cutter.

6. Use only one extension cord

Computer Safety Rules

1. Appropriate for child’s age

2. Playing games should be limited, and not use too much time of your child to play

3. Parents should monitor the children from time to time.

4. No violence as children are getting more violence and adolescents

5. Don’t give mature rated games above 17, give racing, ﬂying, role playing, sport, outdoors and strategy

Sources:

Group 8 PPT

(Sarah Bean. "Dealing With An Angry, Acting-Out Child?" Empowering Parents. N.p., n.d. Web. 02 Sept. 2013. <http://www.empoweringparents.com/how-to-set- limits-around-video-game-use.php>.

Ben Kuchera. "ArsTechnica." ArsTechnica. N.p., 27 Dec. 2010. Web. 02 Sept. 2013. <http://arstechnica.com/gaming/2010/12/parenting-and-video-games/>.

AbbiPerets. "Set Rules for Kids and Video Game Play." SheKnowsPlus RSS. N.p., 19 Mar. 2010. Web. 02 Sept. 2013. <http://www.sheknows.com/sheknows-plus/articles/ 814304/set-rules-for-kids-and-video-game-play-1>.

Baylor, Chris. "Top Woodworking Safety Rules Every Woodworker Should Know." About.com Woodworking. About.com, n.d. Web. 27 Aug. 2013.

Maman. Personal Interview. 27 Aug. 2013.)

1. How to test a toy/game? (ACCESS FM)

For toys, first of all you should surely confirm with the client. If the toy has matched with their needs and if it is actually the toy that they wanted. After that you should show the toy to the client to know if you’re successful. Besides all this there is also a safety test for the toy which include:

Lead Paint/Content

Drop-Test

Small Parts Test

Compression Test

Tension Test

Sharp Points Test

Sharp Edges Test

Torque Test

Scratch Test

For games, it is also quite similar to toys. First of all the client is the most important. Confirm with the client if the game is intact with their needs and once you completed the game, test it on them to know if you have succeeded. This can be done using survey. Besides all this there is also a separate test. This test include a bug/problem test, graphic test and compatibility test. Those are basic tests to make sure the game will operate smoothly.

Sources:

Group 8 PPT

(Crosby, Tim. "How Video Game Testers Work." *HowStuffWorks*. HowStuffWorks,Inc, 2013. Web. 27 Aug. 2013. <http://electronics.howstuffworks.com/video-game-tester.htm>.

Gould, Hannah. "Game On: Using Computer Games to Captivate Your Class." *The Guardian*. Guardian News and Media, 14 Sept. 2012. Web. 27 Aug. 2013. <http://www.theguardian.com/teacher-network/2012/sep/14/gaming-in-education-tips-for-teachers-ollie-bray>.

Revadid, Claudio. "An Overview of Game Testing Techniques." *Idt.mdh.se*. AdilFarid. Web. 27 Aug. 2013. <http://www.idt.mdh.se/kurser/ct3340/ht11/MINICONFERENCE/FinalPapers/ircse11\_submission\_15.pdf>.)

**APPLYING THE INFORMATION**

Sample of Traditional Toys



Toy 3

Toy 2

Toy 1

|  |  |  |  |
| --- | --- | --- | --- |
|  | Toy 1 – LompatTali | Toy 2 - Matching | Toy 3- BalapKarung |
| Concept | Long thick rope which will be spun around while client will jump. | Matching cards that have the same number with the one with the same symbol | Client’s legs inside a sack and they hop to the finish line. Jumping is the concept. |
| Modification | Decrease rope length, better color design and change the material of rope. Have action during jump. Also, create a handle made of wood on the edges of the rope. | Decrease amount of cards, change symbol from dots to fruits or any other picture. Also change the plastic cards into wooden cards. | The sack will be replaced with a wooden object similar to a “kudalumping.” However, instead of an animal, I shall create a transportation instead, a car for instance. Jumping is what I will apply to this modified game. Two or three kids will be able to use this new toy. I will also create a map for them from wood, it will basically be a map of the world with the seven continents. The kid’s goal will be to hop while on the car to particular continents. |
| 1 | Material: Rope that is less thick than original, maybe made of plastic, paint, paintbrush, wood, and saw. | Material: Paper, saw, markers, paint, plywood | Material: markers , scissor, plywood, hinge, saw, paint, |
| 2 | Exercise and train teamwork – kids need to work together so the other kid can jump perfectly. | Train teamwork, learn fruits and counting | Train social abilities because they compete, exercise legs, teaches them geography, and gives sense of direction. |
| 3 | Social and gross motor skill. | Social and cognitive skill. | Social and gross motor skill. |
| 4 | Aesthetics: shape and color  Cost: (0)  Costumer: more than 3 years  Ergonomics: Fun | Aesthetics: color  Cost: (0)  Costumer: more than 3 years  Ergonomics: Fun | Aesthetics: Color, shape,  Cost: (0)  Costumer: more than 3 years  Ergonomics: Learn while having fun |
| 5 | Material of rope, must not hurt the client. | Sharp edges of the wood | Sharp edges of wood, and the object they will hop on mustn’t have a rough surface. |
| 6. | Cutting and painting | Paint and Cutting | Cutting, painting, drilling |
| 7. | Working with saw | Working with saw | Working with saw |
| 8. | Lead Paint/Content  Drop-Test  Sharp Points Test  Sharp Edges Test  Scratch Test | Lead Paint/Content  Small Parts Test  Sharp Points Test  Sharp Edges Test | Lead Paint/Content  Drop-Test  Compression Test  Sharp Points Test  Sharp Edges Test  Torque Test  Scratch Test |

Sample of Modern Toys



Toy 3

Toy 2

Toy 1

|  |  |  |  |
| --- | --- | --- | --- |
|  | Toy 1- Snake Ladder | Toy 2- Chess | Toy 3- Beads |
| Concept | Moving your object to “100” based on two dice rolls. | Protecting your kingdom by taking out the enemy’s king from their kingdom. | Flicking one of your three beads to knock the opponent’s beads of the board. |
| Modification | Decrease the objective to 50, increase the object size from wood, and make it one dice. | Change the rule of the game, make the chess pieces’ movements simpler.( so each piece can just move forward) Make the chess pieces bigger and change from attacking kingdoms to attacking bullies) | Increase the size of the beads and change the beads to an animal. |
| 1 | Material: Paper, pencil, paint, wood, saw, dice | Material: Saw, wood, paint, paper, pencil | Material: Saw, wood, paint, paper, pencil |
| 2 | Have fun with friends, socialize. | Learn strategy, socialize with friend | Learn precision and socialize with friend |
| 3 | Social skills, math skills | Social and cognitive skill | Social and find motoric skill |
| 4 | Aesthetics: Color, shape  Cost: (0)  Costumer: More than 3 years  Ergonomics: Having fun, increase game tools to appropriate size for client. | Aesthetics: Shape  Cost: (0)  Costumer: More than 3 years.  Ergonomics: Having fun | Aesthetics: Shape, color  Cost: (0)  Costumer: More than 3 years  Ergonomics: Have fun, attractiveness |
| 5 | Edges of paper board, dice so it won’t be swallowed | The chess pieces, must not be swallowed, and the sharp edges of the board | The beads/animal pieces cannot be swallowed and the sharp edges of the board |
| 6 | Painting, cutting | Painting, cutting | Painting, cutting |
| 7 | Working with saw | Working with saw | Working with saw |
| 8 | Lead Paint/Content  Small Parts Test  Sharp Edges Test | Lead Paint/Content  Drop-Test  Smart Parts Test  Compression Test  Sharp Points Test  Sharp Edges Test | Lead Paint/Content  Drop-Test  Smart Parts Test  Compression Test  Sharp Points Test  Sharp Edges Test |

Toy Rankings

|  |  |  |  |
| --- | --- | --- | --- |
| Rankings | Name of Toy | Interesting Facts | Negative Facts |
| 1 | BalapKarung | -**Rules are simple**  -Involves jumping movement  -Open toy, the sack can be used for different purposes, like jumping, or hiding.  -Competitive toys  -Interactive game, interact with the opponent | -The sack is too big for them  -They might fall if they are not careful  -Kids can get rough while racing, during the video one of the kids was pulling the shirt of the other kid |
| 2 | UlarTangga | -The playing board is colorful  -The objects that are moved every time dice is rolled have attractive shapes for the kids. (Ex. Shoe, hat)  -**The clash of dices** attracts the kids  -Competitive toy  -**Interesting pictures** like snakes and ladders in the playing board.  -Interactive game | -The details of the rules are difficult to understand for the kids  -The size of the dices are too small, kids might swallow them. |
| 3 | LompatTali | -The **rotating movement** of the rope attracts the kids (shape)  -Involves jumping movement  **-Open toy**  -Competitive toys  -Interactive game | -The rope is too long and big for the kids, the rope’s surface was rough, it could hurt them  -It was difficult for the kids to rotate the rope together, the timing was hard for them |
| 4 | Chess | -The board color, its pattern attract the kids  -The chess pieces have attractive shape  -Competitive toys  -**Interactive game** | -The rules of the game are just too complicated for the kids  -The pieces are attractive enough for them to swallow |
| 5 | Matching | -The color of the cards are attractive  -The object/picture of each card are attractive  -Interactive game  -Competitive game, who can match the fastest  -Unique | -Some of the kids had difficulty matching the cards with high numbers  -Some didn’t understand the rules at all |
| 6 | Beads | -The color and the pattern of the board is attractive. (chess boards are usually used for this game)  -The way to play the game is interesting, flicking beads. It is attractive action for the kids.  -Interactive game  **-Competitive game**  -Unique | -The kids had trouble flicking the beads, they don’t have that much fine motoric skill  -Had trouble knowing which beads were theirs |

**PROJECT PROPOSAL**

Defined Problem: The kindergarten students are in need of a fresh, simple, easily operated, as well as a fun toy which will be able to improve their ability to socialize with their friends (social skills). Based on observation, the students lack interaction while playing the sample toys. I will have to investigate, design, plan, and produce this toy which will surely fit with the design specifications.

Design Brief: I am going to create a new toy constructed of wood in school within a time period of 3 weeks with the purpose of improving the kindergarten students’ social skills.

|  |  |
| --- | --- |
| Design Specifications | Testing Method |
| Aesthetics: The toy should be interesting and looks attractive for the kindergarteners because they won’t play the toy if it doesn’t attract them. This will include aspects such as color and shape. | Interest Survey: For this test I will give the kindergarteners’ a survey asking them if the colors, shape and other aspects are attractive. The language will of course be simplified. |
| Customer: The customer here or the client are the kindergartener students. | Observation: I will observe on the client and make sure that they are kindergarteners. That is the testing method for this design specification. |
| Cost: The whole cost will not exceed Rp 300,000 | Observation: I will observe on the prices when I purchase the materials and make sure that it is less then Rp 300,000. |
| Ergonomics: The toy should be compatible with the kindergartener, they should have no difficulty playing the toy. It should suit their needs and most of all they should have fun. | Observation: For this design specification, I will observe the kindergarteners’ while they are playing the toy, observing if they are having any difficulties with the toy. Smiling and laughing are signs that the kindergarteners are playing in ease and having fun. |
| Size: The size of the toy must not be too big and heavy for the kindergartener, or else they won’t be able to carry it. | Size Test: For this test I will make sure that the toy won’t be twice the size of the kindergartener, therefore both height and length won’t exceed 1, 5 meters.  Weight Test: For this test, the toy must be able to be picked up by the kindergartener. Therefore I will weigh the toy and it must not be heavier than 2 kilograms. |
| Safety: The toy will not have sharp edges, also the toy will only be made of non-toxic materials. | Sharp Point Test: For this test, I will run my fingers along the surface and edges of my product to make sure that there aren’t any sharp edges which could hurt the kindergartener.  Non-Toxic Material Test: For this test, I will just observe on the materials I use and make sure that the packaging does not state any toxic materials. |
| Function: The toy will focus on the improvement of the kindergarteners’ social skill. | Social Skill Test: This is quite difficult to test, however I will give a survey or an interview towards the kindergarteners’ teachers to ask if the toy will improve their social skill. |
| Material: The materials I use for the toy must be strong and robust so it won’t break when being played. | Strength Test: The toy must be strong so it won’t break if the kindergarteners’ drop it. To test this, I myself will drop the toy to see if it holds from a height of half a meter. |
| Time: The time to create the toy will be within three weeks. | Observation: For this test, I will simply observe and record myself to make sure that I complete the toy in 3 weeks. |
| Innovation: The concept from a traditional toy is adapted into the toy that will be created, thus it is innovated. | Survey: For this specification I will give a survey for the design technology class asking whether the toy has adaptations of traditional toy concepts. |
| Attractive: Open Toys, Competitive, Simple, rotate/clashing toys |  |

Evaluation

1. Does the product meet the challenge? Why?

Yes, the product has met with the challenge. Actually, it hasn’t met completely because I haven’t selected on a toy to re-design. However my entire work so far will contribute to the completion of the challenge. This is because all my work here is research and materials for the final toy. I have researched a total of six sample toys which all can be candidates for the final toy. Also, I have brainstormed modifications for each of the six toys. Therefore all I need to do is review on each of the six toys and I will find the final toy. Plus, each of the modifications for the six toys are not traditional. Modern ideas have been integrated and thus a new game of some sort has been created for each of the six toys. Everything is done and ready to create the re-designed toy. This is why my product so far has met with the challenge.

1. In your prediction, what will be the strength and limitation of this project? How will you overcome it?

There are lots of strengths from this project, from discovering the ideas to re-design toys and actually creating the toy. First of all, we already brainstormed modifications for six different toys. I believe this already has improved our think ability. Towards the end, we will be creating the toy using wood. That is also a strength because learning to cut wood by using a saw will be a useful skill in the future. The project is giving us strengths that are useful in the future. For the limitations, I believe that will be the creation process. I predict that my toy will be quite difficult to create. This will create limitations such as not being able to finish on time, or not being able to create the toy that was planned. This will be a huge challenge. The only way to overcome this limitation would be to manage my time wisely. Knowing that it is going to be a hard toy to create, I will have to work efficiently and maximize the time I have during class. I will also have to probably work during lunch times.

1. Do you have good resources?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Resources | Reliability | Accurate | Currency | Coverage |
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