

Children



Most Parents of pre school children like to encourage the mental and physical development of their child by providing challenging and stimulating toys.

Possible Clients

Julia Masters.

Julia lives in Havelock North and has a 3 year old son called Henry who would be a suitable stakeholder because he is now learning to count, run and can think independently. Julia works full time in advertising so this could be a problem when it comes to contacting her to discuss ideas. She offers me the opportunity for me to work one on one with her and her son to develop a finalised solution. but because she works, this time could be limited.

Andrew Grimes.

Andrew has a 4 year old daughter called Emily who could also be a suitable stakeholder. She is at the stage where she now has co-ordination skills and enjoys hands on challenges. Unfortunately Andrew works full time as a builder and lives in Wellington so this could make it difficult to contact and show Andrew possible ideas and concepts I develop. There are very few opportunities for me if I choose Andrew because he lives so far away but I may be able to pick up some woodworking skills from him because he is a builder.

Kate Murphy.

Kate is a possibility because she lives locally in Havelock North and would be easy to contact any time. She has a 4 year old child called Tom who is also developing his co-ordination and likes to try new things. I think Kate will be the most suitable client for these reasons and Tom will also be a suitable stakeholder as he offers me the opportunity to work with her one on one as client at any needed time.

Cassie Mawley

Cassie has a 3 month old son and works part time in administration. Her son likes to explore new and different things. Although he likes to play with anything he could be a bit young to be a suitable stakeholder for me considering he is unable to sit up for a long period of time. Cassie can offer me the opportunity for me to work one on one with her and her son to develop a finalised solution.

Toy Shops

Lastly, I could select a toy shop to be my client because they could purchase my product and sell it in the shop. By doing this I would have the opportunity for many people to see my product on a shelf in the shop and could even get more orders from other people. The only problem with this is I would not be working directly with a child stakeholder which is what I need to do.

Pros and Cons

Julia Masters.

Pros:

- Lives in Havelock North.
- Her son Henry is at a suitable age. (3 years)

Cons:

- Julia works full time.
- is extremely hard to get hold of regularly.

Andrew Grimes.

Pros:

- Is a builder so I am able to learn new things from him.
- His daughter Emily is a suitable age (4 years)

Cons:

- Works full time.
- Lives in Wellington.

Kate Murphy.

Pros:

- Lives in Havelock North.
- Can easily get in contact with her.
- Her son Tom is at a suitable age.

Cons:

- She does work part time.

Cassie Mawley

Pros:

- Lives in Havelock North
- Can easily get in contact with her

Cons:

- Her son could be too young to be a suitable stakeholder for me.

Toy Shops

Pros:

- There are many around to choose from.
- My final solution could be sold through the shop.

Cons:

- I wouldn't be working one-on-one with a stakeholder.

Pros and Cons

Julia Masters.

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- Lives in Havelock North.
- Her son Henry is at a suitable age. (3 years)

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Pros:

- Lives in Havelock North.
- Can easily get in contact with her.
- Her son Tom is at a suitable age.

Cons:

- She does work part time.

Cassie Mawley

Pros:

- Lives in Havelock North
- Can easily get in contact with her

Cons:

- Her son could be too young to be a suitable stakeholder for me.

Toy Shops

Pros:

- There are many around to choose from.
- My final solution could be sold through the shop.

Cons:

- I wouldn't be working one-on-one with a stakeholder.

Planning

*Key Decisions have been made. Why?
I had to decide on a suitable client and stakeholder because I need to identify an issue to base my solution around. The client and Stakeholder had to be suitable otherwise my project would not be a success because I wouldn't be able to work one on one with them to produce a quality product. I looked at all the pros and cons for each possible client and from that I chose one.*

*What I plan to do next...
Now that I have selected my client and stakeholder I now need to identify a range of issues they have. I will then select one issue that will be the most suitable for me to construct a solution for. When selecting the issue I will consider every part and look at the issue from every possible angle so I make sure I decide on the right one for me.*

*People I need to see...
I need to speak to my chosen stakeholder and client and come up with possible issue ideas. I will then decide on one issue.*

*Key resources...
Computer and camera.
I own my own camera so this is readily available for me.
The school computers are usually free and I also have one at home I can use.*

*Client feedback...
"I am happy to be your client and look forward to seeing the final product".*

-At this stage I was able to access all the resources I needed to complete the current task. These include the camera and computer which are available anytime.

Client Issues

The Client I have selected is Kate Murphy. My stakeholder will be her son Tom who is 4 years old. I selected Kate because she lives locally and will be easy to contact at any time, whether it would be via phone, email, or even in person. Kate is also a suitable client because she has a general idea of the technology process as she did technology in her school years. Another reason I chose Kate is because her son Tom is at an age where he is a really suitable stakeholder for me to base my final solution around. This is because he can do certain activities independently and is easily amused by stimulating things.

I spoke to Kate and we came up with these possible issue ideas:

Issue 1:

Tom enjoys outdoor activities such as riding his bike on the driveway. The issue here is Tom needs another form of transport he can ride around on because his bike is a bit too big for him and he struggles to use it independently. If I choose to find a solution for this issue, I would design another easier form of transport for Tom to ride such as a cart, tricycle or a scooter. The only bad thing about this issue is because the main material I will be working with is wood so it would be difficult to construct an effective, long lasting solution that works.

Issue 2:

During the late afternoons while Kate is preparing dinner, Tom runs around the house disturbing Kate and doesn't settle down. There is a definite issue here that needs a solution. For this issue I would need to come up with an idea that would occupy Tom and keep him amused during this time. Also the solution for this would need to be used inside the house where Kate can keep an eye on Tom. This would be an interesting issue for me to choose because there could be a wide range of solutions to choose from and would be an enjoyable project to work on.

Issue 3:

Tom is too small to be able to sit up properly at the dinner table. He gets fed up and doesn't eat so I need to come up with a solution to this such as constructing Tom his own set of table and chairs that are custom built to his size. The only problem with this is there is a limited amount of space in their living room so a solution such as this would be unable to be used. Building Tom something like this would require a lot of space for it to be stored in at the Murphy's home so this wouldn't work.

Pros and Cons

Issue 1:

Pros:

- This issue could be quite easily solved.
- A solution for this could easily be developed.
- Tom would enjoy riding a cart, tricycle or scooter.

Cons:

- Because I am mainly working with wood, the final solution wouldn't be suitable for outdoor use as it would be exposed to the elements.
- Tom would physically grow out of something I made for this issue where as if I made something mentally challenging, he could always use it.

Issue 2:

Pros:

- This issue could also be quite easily solved
- A solution for this could also easily be developed.
- Solving this issue would make evenings easier for Kate as Tom would settle down.
- Depending on the solution, it could help develop Tom's problem solving, motor, or concentration skills.

Cons:

- The solution would really have to appeal to Tom other wise he wouldn't use it.

Issue 3:

Pros:

- The solution would be regularly used everyday
- If constructed well, Kate could sell the solution after Tom grows too big for it

Cons:

- Building a table and chairs would require a lot of materials
- Tom would not be interested in the solution is it would be just a piece of furniture he would use.

I have chosen Issue 2 to base my project on. I will be able to design and manufacture a quality product that will solve this issue. I have chosen this issue because it has the least amount of cons and offers me an opportunity to design something that is completely unique as I have not addressed an issue like this before.

Profiles

Client:

Name: Kate Murphy

Relation to stakeholder: Mother

Lives: Koponga Road, Havelock North.

Occupation: Administration.

Hobbies/Interests: Walking, socializing, her children (Tom, 4, Grace, 9) and gardening.

Lifestyle: Is married to Shayne Murphy. Works 4 days a week and spends time with Tom on Mondays, doing activities like grocery shopping and takes Tom to his swimming lessons. This frees up her weekends to spend time with the whole family.

The Issue: Kate wants a solution to occupy Tom during the evenings while she is cooking dinner. The solution needs to be used indoors and cannot be too large.



Stakeholder:

Name: Tom Murphy

Relation to client: son

Age: 4 years

Member of family: Youngest

Hobbies/Interests: Batman, Spiderman, Transformers (Robots), cars, Thomas the Tank Engine, Swimming and enjoys completing challenging puzzles.

Favourite colours: Blue, green, black, gold, grey.

Lifestyle: Is the younger brother to Grace Murphy and son to Kate and Shayne. Attends swimming development lessons on Mondays and goes to Kindergarten four days a week.



Wider Stakeholder 1

Name: Grace Murphy

Age: 9 years

Relation to stakeholder: Sister

Lives: Koponga Road, Havelock North

Member of family: Eldest of two children

Hobbies/Interests: Riding Motorbike at beach. Riding bike. Swimming - dancing
Shopping - Golf

Lifestyle: School at H.N.P.S. Tuesday - dancing. Saturday morn - swimming
plays with Tom after school.



Wider Stakeholder 2

Name: Shayne Murphy

Relation to stakeholder: Father

Lives: Koponga Road, Havelock North

Occupation: Ref engineer.

Hobbies/Interests: Squash, diving, Rugby, Racing, Combining
motor bikes

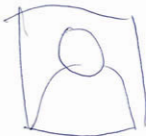
Lifestyle:

- 8-6 work

- Most time with Tom on W.E

- ride motorbikes with Tom

- lunch.



Wider Stakeholder 1

Name: Grace Murphy

Age: 9 years

Relation to stakeholder: Sister

Lives: Koponga Road, Havelock North

Member of family: Eldest of two children

Hobbies/Interests: Riding motor bikes and bicycles. Swimming, dancing and shopping.

Lifestyle: Attends Havelock North Primary School. Takes dancing lessons on Tuesday afternoons and swims on Saturday mornings. She spends time with Tom on week days after school and on weekends.



Wider Stakeholder 2

Name: Shayne Murphy

Relation to stakeholder: Father

Lives: Koponga Road, Havelock North

Occupation: Refrigeration engineer.

Hobbies/Interests: Squash, diving, rugby, racing, motorbikes and golf.

Lifestyle: Works 5 days a week from 8am to 6pm. Spends most of his time with Tom on the weekends and family holidays. Their time is spent riding motorbikes at the beach and going out for lunch.



Planning

Key Decisions have been made. Why?

I have established an issue that my client Kate has by speaking with her about the problem areas. I have decided on an issue and am now able to attempt solving it.

What I plan to do next...

I will now construct an initial plan that will feature key dates and milestones. I will work from this plan to keep on schedule. I will also construct a questionnaire for Kate and Tom to fill out, which will contain key questions about the issue. This will help me initially when it comes to designing.

People I need to see...

I will need to interview Kate and Tom by giving them a questionnaire to complete.

Key resources...

Computer to construct a questionnaire and initial plan
The school computers are usually available and I also have one at home I can use.

Client feedback...

"I think the issue you have decided on is the best one out of the three. The issue is a problem that needs to be solved"

-I have no problem accessing computers so there will be no delay at this stage.

Planning

*Key Decisions have been made. Why?
I have established an issue that my client has by speaking with her about the problem areas. I have decided on an issue so I am now able to try solving it.*

*What I plan to do next...
I will now construct initial plan that will feature key dates and milestones. I will work from this plan to keep on schedule. I will also construct a questionnaire for my client and stakeholder to fill out, which will contain key questions about the issue.*

*People I need to see...
I will need to interview my client and stakeholder by giving them a questionnaire to complete.*

*Key resources...
Computer*

*Client feedback...
"I think the issue you have decided on is the best one out of the three. The issue is a problem that needs to be solved."*

Initial Plan

On my initial plan I marked key milestone stages because it shows important dates where I need to, or have completed an important page in my folder. I have done this because it shows me what pages I need to prioritise my attention to, and to show readers of my folder that I have focused my attention to important things.

The milestone stages I chose were:

Issues. – This is because once I have selected my client, I need to identify an issue they have. This needs to be suitable for me to work with and to base my entire project around. If I do not find an issue that is suitable, my project will not be a success.

Intended Location. – This is because the end product needs to be able to fit into the environment it is intended to go in. for example if the place the product will be used is really small, I cannot design something that is too large that will get in the way of things around it. Also the design has to match the intended location. For example if the location is an olden day style, the design would not fit in if it was extremely modern and brightly coloured.

Key Factors – I chose this because the whole design of my product is based around these factors. These are the things that will determine the outcome of my product. Without the key factors my final solution wouldn't be successful in solving my clients issue.

Research - this is because the design on of my final solution will be based around the research I do and the existing solutions I find. I think this is important because by doing this I can find new ideas of design and methods off doing things. This will help me create a quality solution that will suit my stakeholders development stage.

Development -- I chose this because the development of my chosen concept will personalize it more to my stakeholders needs. This will make the concept a better solution that will be more successful in solving my clients issue.

Questionnaire

Client: Kate Murphy



How often does Tom Play with toys?

2-3 hours day.

What do you think is his favourite toy?

anything with superheros
- bionicles.

What kind of toys do you prefer Tom to play with? E.g. soft toys, educational, mechanical, etc

mechanical

Does Tom prefer fun simple toys or toys that make him think?

How often do you purchase new toys for Tom?

weekly

Is there anything you would not like the toy to feature?

safety

Stakeholder: Tom Murphy



What is your favourite toy at kindy? Why?

blocks sandpit build anything

What is your favourite toy at home? Why?

batman costume Bionicle robots. got guns
on my truck. - lots of parts

What things would you like the toy to have on it?

moving parts guns.

Questionnaire

Client: Kate Murphy

How often does Tom Play with toys?

2-3 Hours a day

What do you think is his favourite toy?

Anything to do with superheroes. Or bionicles.

What kind of toys do you prefer Tom to play with? E.g. soft toys, educational, mechanical, etc

Mainly mechanical

Does Tom prefer fun simple toys or toys that make him think?

Mostly toy that make Tom think about what he is doing.

How often do you purchase new toys for Tom?

Weekly

Is there anything you would not like the toy to feature?

Nothing in particular but I wouldn't want Tom to use the toy as a weapon to try hurt people. I think the toy should be really safe for Tom to use.

Stakeholder: Tom Murphy

What is your favourite toy at kindy? Why?

I like playing with blocks because you can build anything. Also the sandpit.

What is your favourite toy at home? Why?

My Batman costume, Bionicle robots because they have guns. And my army truck because it has lots of parts.

What things would you like the toy to have on it?

Moving parts and guns.

From this questionnaire I have learnt about Tom and his life around toys. I think that the toy I construct needs to be really appealing to Tom as he can spend up to 3 hours a day playing. For this reason the Toy needs to keep Tom enthused and therefore not lose his interest too quickly.

Tom's favourite kinds of toys are ones that have changeable parts or guns/parts that move. Mechanical things and real "boy" toys like robots and army trucks appeal to him and keep him occupied for hours. Because of this I think I will design my concept around these ideas.

The toy I am going to construct needs to make Tom think about what he is doing and figure out how things work. He enjoys learning about his new toys and this is what keeps him amused.

Finally from this questionnaire I now know that Kate does not want the toy to be a hazard to Tom or those around him. For example she does not want the toy to be any kind of weapon that can be used to hit people. The toy needs to be at a high standard of safety and also needs to be durable for Tom to use.

Planning

Key Decisions have been made. Why?

I decided on some questions that I thought would be relevant to ask my client and stakeholder about things to do with toys. The answers I got will help determine the kind of solution I design.

What I plan to do next...

I will now explore the intended location where the toy will be used. This will include analysing the surrounding area and things in the room that will affect the design of my solution.

People I need to see...

My client, to allow me to explore the intended location.

Key resources...

*Computer,
Camera,
Location.*

Client feedback...

"Tom spends a lot of time playing in his room so take a picture of that as well..."

Planning

Key Decisions have been made. Why?

I decided on some questions that I thought would be relevant to ask Kate and Tom about things to do with toys. The answers I got will determine the kind of solution I design.

What I plan to do next...

I will now explore the intended location where the toy will be used. This will include analysing the surrounding area and things in the room that will affect the design of my solution.

People I need to see...

I will need to see Kate to allow me to explore the intended location.

Key resources...

Camera to take pictures of location.

Computer to organise photos etc.

Location to take pictures of.

I am always able to have use of my camera and a computer.

The location is only available when Kate is.

Client feedback...

"Tom spends a lot of time playing in his room so I think you should include a picture of that"

-There will be no delay using a computer and camera. The availability of the location will depend on Kate and when she is home. I need to ensure we set a date that suits us both so I can explore the location without any hold up.

Explore Location

This is the Murphy house on Koponga road. It is inside this house that Tom spends most of his time playing with his toys.



This driveway is where Tom spends a lot of time riding his bike.

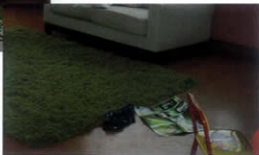
This is Toms Bedroom where he also spends a lot of his time. He plays with and stores a lot of his toys in this bedroom. Tom occasionally doesn't like to play with some of his toys in here because of the floor surface. The carpet restricts things like wheels and other things to operate successfully. Because of this reason Tom often plays with his toys in the living area where it has a hard surface wooden floor.





This is the kids living area where Tom also likes to play with his toys. The hard wooden surface is suitable for his toys to be stable and operate easily. The room does feature a large fluffy rug in the centre of the room. This isn't as suitable for playing on because miniature parts can get lost into the rug.

This room is situated next to the kitchen and dining room table so when Tom plays in here Kate can keep an eye on him. Tom enjoys lying on this rug and playing with toys on the edge of it on the wooden floor.



This room also contains expensive equipment and ornaments that restricts the sizing of the toy I can build.





This is the dining area of the Murphy house which is situated between the kitchen and lounge. It features a hard surface wooden floor that Tom often plays on because it allows things like toy car wheels, etc to move freely. Tom often uses this area because it is close to the kitchen where Kate can keep an eye on him. This is a definite area the toy will be used in.

The dining room table. This is also sometimes used for things like jigsaw puzzles because of its even surface.

This area features a spacious hard surface floor. This is perfect for Tom to play on.



This room of the house also contains ornaments and other valuable objects. Because the toy will be used in this room, it can not be too big and cannot feature large, bulky parts that could risk damaging these objects.



Initial Brief

I am going to design and construct a toy for my client Kate Murphy. The toy will be played with by her 4 year old son Tom by himself in the evenings. The toy will help Tom's development as it will occupy his mind and enhance his concentration skills, increasing his ability to concentrate on one thing.

and Specs

- The toy must be no bigger than 500mm x 500mm as it will be used in the living areas of the Murphy home and will also be stored away.*
- The toy must not feature any points or edges that could be dangerous for Tom to use.*
- The toy must function on carpet and on wooden floors.*
- The toy must be appeal to Tom*
- The toy must be designed so Tom can concentrate on it for a period of time.*
- The finish of my solution must not be a toxic danger to Tom.*

Explore Location-Storage



My final solution will be stored in this area in the main lounge. This is Tom's little area that has his bean bag and a TV that has all his favourite DVDs. Tom spends quite a lot of time in this area so Kate thinks this will be a good place to store my final solution.

The toy will most likely be kept on display on top of this chest, next to the TV.

This is "Tom's corner" It contains many of his DVDs.



It features a hard wooden floor which is perfect for toys to be played with on.

This area is situated in the main living area so Kate can keep an eye on Tom. "This will be the best place to display the toy".

Planning

Key Decisions have been made. Why?

Through speaking with my client, we decided on the areas of the intended location where Tom plays the most with his toys. I needed to explore these places so I can design my solution around these areas.

What I plan to do next...

I will now look at child development and the stage where Tom is at. This will help with designing a suitable toy that is right for Tom.

People I need to see...

Key resources...

*Computer,
Internet.*

Client feedback...

Planning

Key Decisions have been made. Why?
Through speaking with Kate, we have decided on the areas of the intended location where Tom plays the most with his toys. These areas are his bedroom and the hard floored living room/lounge. I needed to explore these places so I can design my solution around these areas.

What I plan to do next...
I will now look at child development and the stage where Tom is at in his life. This will help with designing a suitable toy that is right for Tom.

People I need to see...

Key resources...
Computer to present pages
Internet to research
I have access to computers that all have internet.

Client feedback...

I have full access to internet via computers at anytime. Any holdups would be a result of internet failure which is rare.

Research

I looked at various websites to gain background knowledge on 4 year old children and the stages they are at with their physical development.

Physical Development

- weight: 27-50 pounds
- height: 37-46 inches
- uses a spoon, fork, and dinner knife skillfully
- dresses self without much assistance (unzip, unsnap, unbutton clothes; lace but not tie shoes)
- can stack 10 or more blocks
- forms shapes and objects out of clay or play dough
- threads small beads on a string
- catches, bounces, and throws a ball easily
- likes to jump over objects, run, gallop, bike, skip, turn somersaults, climb ladders and trees,
- hop on one foot and moves around obstacles with ease
- They are not very good at pacing themselves, and will get tired and cranky if not offered enough quiet activities.
- Three year olds can roll and bounce a ball, but catching is still difficult.
- By four years, a child can hold a pencil correctly.
- During this year, they will learn to cut with scissors.
- Uses a pedal tricycle
- Likes pretend playing
- Can carry and maneuver larger heavier objects and toys



From this research I have learnt what stage four year old children are at with their physical development. This will help me when it comes to designing the final solution. I will be able to know whether or not the toy is too simple or too complex for my stakeholder (Tom) to use. This information will be useful when designing because I can use it to fall back on and check if the features I include are suitable for a four year old.

- want to eat when hungry instead of the set meal times
- eat messily and spill food.

You can help your child's development if you:

- are consistent and make a routine for the day
- give lots of praise and cuddles
- keep your praise specific so that your child recognizes the behaviour you like
- make commands clear and simple
- encourage their independence in eating and dressing
- answer their questions, even when it is the same one over and over again - this is how your child learns
- offer simple choices - "do you want the red or the blue one?"

[^ TO TOP](#)

3 to 6 years - the stage of 'self awareness and imagination'

Around this age your child will be very aware of themselves and their place in the world but will also enjoy using their imagination. Throughout this stage your child will be starting to assert their own identity and learning that behaviour has consequences and the effect that it has on others. They will begin to learn what is and is not socially acceptable behaviour and will be able to separate reality and fantasy. They will learn what they can and can't control, as well as continuing to develop their earlier abilities.

It is typical of a child this age to:

- play in a fantasy world and create imaginary friends
- ask even more questions - as well as "why" there's now "how" and "when"
- try out different identities
- set up power struggles and watch the power dynamics in family relationships
- begin to play cooperatively with others
- develop an interest in games and rules
- practice social skills.

You can help your child's development if you:

- encourage them in the new challenges they will face at this age, such as kindergarten and school
- talk to them about feelings so they can learn to express and connect their feelings and thoughts
- answer their questions and give the right information about their bodies and the world around them
- praise good behaviour
- encourage their imagination but help them to separate fantasy and reality
- keep instructions clear and simple.

- Home
- What's New?
- Let Time Here?
- Free Membership
- Log In/Out
- Help! How Do I...?
- EE Newsletter
- News
- Back To The Table
- Celebrity Parents
- Contact

- Frequency & Birth
- 0-1 Years
- 1-4 Years
- 4-9 Years
- 9-13 Years
- 13+ Years

- Ask Our Experts
- Members' Tips
- Talk!
- Features
- Coups & Freebies
- Coupons & Offers

- Development
- Brothers & Sisters
- Parenting Skills
- Support Groups
- Links

- Marketing

Development 4-7 Yrs: Not A Baby Anymore!

Starting school isn't the only sign he's growing up. Your child is physically stronger, slimmer and faster - definitely not a baby any more!

You may notice your child's own developmental rate varies - a rapid growth spurt may be followed by a long period of minimal growth. As long as your doctor is happy with your child's overall progress, relax and accept that he is probably growing in exactly the right way for him.

Growing up fast?

Over the next few years, you will begin to notice wide variations in development among your child's friends. Some children are early developers, both physically and mentally. Many begin to reflect their future potential physique and a few even begin to display early puberty. Small wonder that children in a typical primary school class can have height differences of up to 12.5 cm (5 in).

An 'athletic' physique

At this age, your child's body fat is redistributed and his legs grow longer, resulting in a much slimmer look. He is also gaining muscle mass and enjoys testing his strength through physical activity, running faster, jumping and throwing further.

He can stand on one leg for longer periods now and can walk on a narrow beam. Depending on his gymnastic ability, he may be able to stand on his head and perform a handstand. He can also learn to ride a 2-wheeler bike.



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These are more pages of information on child development I found on the internet. They contain interesting and important things about the stage of life where Tom is at. This information will all come in useful when designing my final solution.

Feedback

I spoke to my client Kate and showed her the pages on child development I researched and asked her how these things relate to Tom...

Physical Development

Kate's feedback about Tom...

- "Average weight"*
- "Average height"*
- "Can use a spoon, fork, and dinner knife when he wants too"*
- "Can usually dress himself without much assistance"*
- "Can stack 10 or more blocks"*
- "Can thread small beads on a string"*
- "Is always catching, bouncing, and throwing balls"*
- "Loves to jump over objects, run, bike, climb ladders and trees,"*
- "Can sometimes hop on one foot"*
- "Can hold a pencil correctly."*
- "Can cut with scissors."*
- "Loves riding his pedal tricycle"*
- "Can carry and maneuver larger heavier objects and toys sometimes"*

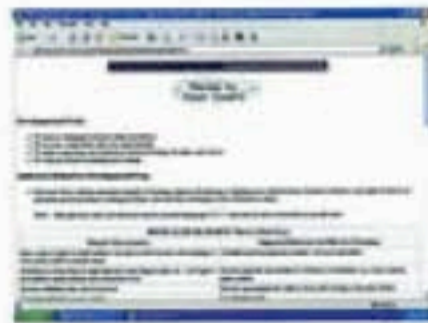
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Commentary on Evidence
An opportunity existed for the student to undertake primary source research with his four-year-old client to identify such things as:

- the toys that actually played with
- how he interacted with toys he was familiar with and those which were new to him
- the average time he spent interacting with a toy and if there were noticeable differences in the time he spent interacting and the types of toys he played with
- the design features included in toys that he played with.

Such research would have given the student a better position to be able to justify the key factors he identified as important to addressing his issue (stimulating a four-year-old boy through playing with a toy) and his design ideas as having the potential to be 'fit for purpose'.

Kate read through the pages that were printed off the internet and "agrees entirely with it all" because it is all relevant to the stages that Tom is now at.



Initial Key Factors

Client

- I have to be able to get in contact with my client easily.
- My client has to want to be involved with, and a part of my project.
- My client needs to be reliable.
- My client needs to have enough free time to give feedback on my project.
- My client needs to be able to give suggestions about the work I do.
- My client needs to have a close relationship with, and know the stakeholder well.

Stakeholder

- I have to be able to get in touch with my stakeholder easily.
- my stakeholder has to want to be a part of my project.
- I need to be able to receive feedback about the product from my stakeholder.

Resources

- I have to have full access to my client, stakeholder and wider stakeholders.
- I have to have full access to my teacher for advice.
- I have to take into account the amount of time I have to complete my project.
- I need to have access to the internet or books for research.

Initial Key Factors

-Fair Trade Act- toy safety standards. My stakeholder is four years old, so the toy safety standards do not apply to my design, as they are based on children aged up to three years old. But I will still consider them in my design process as choking hazards and sharp edges can be a hazard to any young child.

-Location. My design must suit the intended location which is the living room of the Murphy house. It will be used on a wooden floor and stored on top of a wooden toy chest.

-Aesthetics. The design of my solution must be aesthetically appealing to the intended stakeholder. This will result in the child stakeholder liking the design and wanting to use it, therefore making it a success.

-Stakeholder. My design must be user friendly for a four year old child. This means it cannot be too heavy or big, and must be mentally stimulating enough to occupy the child. I must also consider the fact that my design cannot be too simple for the child, resulting in him getting bored with it easily.

-Function. The solution must function properly to successfully serve its purpose.

Planning

*Key Decisions have been made. Why?
I have identified my initial key factors. I chose each one that relates to the stage I am at with my project. These will help me create a product that is right.*

*What I plan to do next...
I will now look at some technologists that create quality wooden toys.*

People I need to see...

*Key resources...
Computer,
Internet.
I have full access to computers and internet.*

Client feedback...

- As of the last planning page.

Technologists

I'm - John Michael Linck - a Toymaker

Fine woodworking has been my living for the past 32 years and a family tradition for more than a century, starting with my great grandfather in the Black Forest. Upon completing his cabinetmaking apprenticeship he sailed to America in 1867. Here he taught and worked with his son, my grandfather. I see the results of their partnership in the ornate wood interiors of many churches and public buildings in my home town, Danville, Illinois.



One hundred years later, I continue their tradition in fine hardwood toys. My apprenticeship began in my father's basement workshop and ended with a degree in Forest Science and Design at the University of Illinois. But, it was really the following years in my Danville storefront workshop that taught me how to make durable wonderful toys and after moving to Madison in 1982 I am still learning every day. I build each toy with care, using Wisconsin hardwoods purchased from a 3rd generation family owned lumber company that provides sustainably harvested wood. These woods are durable, beautiful and timeless. I want my toys to furnish an alternative to some of the throw-away aspects of life today.

You Must Be Pleasantly Surprised

I want you to be completely happy with my wooden toys. I know that the quality of my work will pleasantly surprise you. **If you feel otherwise, for any reason, I want you to have your money back.** You may return any toy for a prompt refund. All my toys are guaranteed for my lifetime. I'm 57. I want you to look at your toy in 30 years and say, "That toymaker did a pretty good job".

My finishes are a combination of walnut and sunflower oil and are non-toxic while giving substantial soil and moisture resistance. (*I buy them at the grocery store.*) They can be maintained occasionally with lemon or mineral oil. My toys have always been "green" in that I use local sustainably grown hardwoods and natural finishes. Now I power my workshop completely with wind power. Our children and our earth are worth caring for.

JOHN MICHAEL LINCK 1998

John includes his name on each toy.

2550 Van Hise Avenue - Madison, Wisconsin 53705-3850.

Click to send an Email: john@woodentoy.com or telephone: (608) 231 - 2808

All these toys are John's own design and are copyrighted in his name. c. 1974-2008

The Toymaker . . . John Michael Linck

Technologists

I'm - John Michael Linck - a Toymaker

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The Toymaker . . . John Michael Linck

Technologists



John Michael Linck - a Toymaker
These are a few examples of Johns work:



*Cherry block wagon
with 100 red oak
blocks \$315.00*



Hardwood Riding Crane \$245.00



*Black Walnut or
Black Cherry
Airplane \$275.00*

*Natural Red Oak
Airplane \$245.00*

John Linck manufactures toys to the highest possible standard. He uses materials that are both friendly to children and to the environment. He takes into consideration the safety of the children that use his toys by finishing his products with a combination of walnut and sunflower oil. These are non-toxic and give substantial soil and moisture resistance.

I personally admire the way John sets out to please his clients by offering a full refund if the client is not happy with the product. This shows that John has a lot of faith in the toys he creates. John also works one on one with some clients to develop a quality solution. He will regularly talk to them and receive feedback about the design along the way. I am using this same style of working with clients to develop my own solution. This is a very effective method as it allows me to create a custom/purpose built solution for my stakeholder that will suit all the given needs.

Here I have displayed a letter to John I found on his website which is from an extremely pleased customer. This is the type of feedback I am after once I finish my final solution.

John,

We ordered the block wagon the summer of 1989. We had admired it the year before but being pregnant now gave us an excuse to buy it. Our son was born Jan. 30, 1990. We received the wagon shortly after as agreed. It is beautiful! For a few months it looked great just sitting in his room. I really thought it would be a long time before he would enjoy playing with it. Well - he loves it already! He started to crawl in September and everytime I put him down in his room he goes straight for the wagon. Now he pulls himself up on it and is taking steps holding the handle. He thinks its great. So do we!

We thank you for your beautiful work and he thanks you for a great toy!

Sincerely, Tim, Tama and Blair

Technologists

While I was researching existing solutions and possible ideas for the toy I am going to construct, I came across this Asian toy company "Take-G Toys". I found many of their products very exiting and different. Take-G Toys create quality toys including a popular line of hand crafted wooden robots.

Take-G toy's is a 'toy' maker which mostly deals with wooden crafts hand-made by Takeji (Take-G) Nakagawa (actual toys which are sold online are restricted to Take-G blocks and zoo). **My motto is to bring wooden beauty and quality into life in my own style.**

I often get asked "Why do you make robots with wood?" I don't really have an exact answer for it but I often relate my robots with 'future'.

What do you relate future with?? Cities full of metals, glasses and plastics in a SF movie???

What we really want is not that kind of future but one full of trees and something more natural. I don't think humans can live without trees no matter what advances technology makes.

When I think of 'future', I cannot help thinking of 'past' at the same time. Trees take long time (tens and hundreds years) to grow and show us their beauty (the product of their past). I think that I have responsibilities as a craftsman and an artist of breathing new life into these trees. I have a job to link 100 years in the past and 100 years in the future through my work. This is my values toward my work.

I wish my work, which carries such values, can grab imaginations of children of the past, present and future.

• About the products of the Take-G toy's
Yosegi-Mokuzougan, or joined wooden block construction, is craft skills where combinations of original and unique colors and textures of different kinds of wood are utilized to express artistic patterns.
In Japan, the Hakone-Odawara region is famous for this traditional handicraft. Products of the Take-g Toy's have expanded this traditional craft skill, which usually employs two-dimensional patterns, by using three-dimensional patterns, instead.

We use four different kinds of wood, a keyaki (a Japanese tree of the genus Zelkova),

a oak, a walnut, and a white ash. A typical production process involves:

- 1) careful choice of the kinds of wood according to parts of a product,
- 2) gluing larger parts in a vise,
- 3) fitting smaller parts such as eyes or numbers into corresponding holes,
- 4) curving assembled parts into the shape of, say, a human, and 5) applying varnish to a product.

The products of the Take-g Toy's are produced by a unique mixture of the traditional craft skill, or Yosegi-Mokuzougan, and modern designs that optimizes original texture of high-quality material.

• Please read below before contacting me (replies to 3 different types of customers - individuals, companies, and galleries including magazines):

P.S. As I do not understand English very well, I have deleted some of English-written emails (I thought they are spams). I apologize for people who did not get my replies. Please write to both me and my brother (tchythin@yahoo.co.nz - he will take care of English emails), but please read below first.

• For Individual customers:

Dear Customers

I am so glad that you are interested in my work.

Unfortunately, the most of crafts shown in the web pages are one-off artworks. I only sell these crafts at exhibitions and art galleries. Therefore, I do not post these products.

I hand-craft these products piece by piece by myself taking a long time and **I have been putting everything I have into my work** to make wooden materials **real quality and beauty shine through**. So, if someone were to buy these crafts, I insist he/she having had a careful look at my work at first-hand and not just looking at photos. I have been insisting on this to my Japanese customers too. So I do not have a brochure of my work. In Japan, I only sell Take-G blocks and zoo online, which are for children (these are true toys but they carry some quality which I pursue).

The prices of my crafts are subject to change so I cannot name exact prices but here are some approximates:

Small-sized crafts: US\$ 50-80

Medium-sized crafts: US\$ 150-500

Large-sized crafts: US\$ 1200-6000



Technologists



Takeji Nakagawa aka Take-G creates quality toys for children. His toys are amazingly detailed and have a completely modern/contemporary style. These toys have a large appeal to today's children because of the use of natural colours as well as the friendly appearance of the robots. Takeji Nakagawa quotes "I wish my work, which carries such values, can grab imaginations of children of the past, present and future." This relates to me and my project because toys are all about imaginations. So I can create a quality toy that captures my stakeholder's imagination, my product will be a success.

The quality Take-G toys are constructed using four different kinds of wood; Keyaki, Teak, Walnut and White ash. Each wood is used for different parts of the product being made. This gives the product the modern multi coloured appearance. If I was to construct a toy similar to Take-G's products I would use this same method of using different coloured woods as it has a very appealing look. This method is known as "Yosegi-Mokuzougan" or joined wooden block construction, where combinations of original and unique colors and textures of different kinds of wood are utilized to express artistic patterns.

In Japan, the Hakone-Odawara region is famous for this traditional handicraft.

Products of the Take-g Toy's have expanded this traditional craft skill, which usually employs two-dimensional patterns, by using three-dimensional patterns, instead.

A typical production process at Take-G Toys involves:

- 1) careful choice of the kinds of wood according to parts of a product,
- 2) gluing larger parts in a vise,
- 3) fitting smaller parts such as eyes or numbers into corresponding holes,
- 4) curving assembled parts into the shape of, say, a human, and 5) applying varnish to a product.

The products of the Take-g Toy's are produced by a unique mixture of the traditional craft skill, or Yosegi-Mokuzougan, and modern designs that optimizes original texture of high-quality material. This will be a similar process to which I use for my product.

Technologists

From studying these two technologists (Take-G toys and John Linck) I have gained knowledge on how to produce quality products that will satisfy the wants of my client. By reading about John Linck and his methods I have learnt that quality comes first and that the toy should be made "with care". This will ensure my product is a top standard and will also "last a lifetime".

John is an inspiration to me because while he creates quality toys, he also cares for the environment as well. He quotes his "toys have always been 'green'" because he uses sustainable hardwoods and natural finishes. He even powers his workshop completely with wind power. John guarantees that his toys are quality products by including his name on every one he makes.

I have discovered that not all wooden toys have to be basic like the ones John creates because Take-G toys have modernized the wooden toy. They have given toys a completely unique and contemporary style that appeals to today's children.

Working with clients mean the product has to be at the highest standard to ensure they are completely happy with it. The best way to achieve this is by interacting one on one with the client to meet their requirements.

Planning

*Key Decisions have been made. Why?
I looked at some technologists that build quality toys. From doing this I have gained knowledge about different toy manufacturers and their ways of creating products. This made me think about the way I am going to create my solution.*

*What I plan to do next...
I will now research some existing solutions and create a questionnaire to establish what features Kate and Tom want.*

*People I need to see...
My client Kate, my stakeholder Tom, and my wider stakeholders Shayne and Grace.*

*Key resources...
Computer to present pages
Internet to research
I have full access to internet and computers.*

Client feedback...

-I have full access to internet via computers at anytime. Any hold ups would be a result of internet failure which is rare.

Planning

*Key Decisions have been made. Why?
I looked at some technologists that build
quality toys. From doing this I have gained
knowledge and inspiration.*

*What I plan to do next...
I will now research some existing solutions and
create a questionnaire to establish what features
my client and stakeholders want.*

*People I need to see...
My client, stakeholder and wider
stakeholders.*

*Key resources...
Computer,
Internet.*

Client feedback...

Revised key factors.

-Materials. I must consider all types of available woods as well as other materials and decide on which ones would be able to withstand a young child playing with them. The materials I chose will need to handle wear and tear as the product is used.

-Availability. The materials I decide to use must also be easily available to me. What the school doesn't provide I will have to purchase or find myself so they cannot be too expensive. Also, because I am making a small toy, I will only require a small amount of material so finding the materials in such a minimal size may be difficult.

-Aesthetics. The types of wood I choose to use must also look appealing when they are put together. If they are similar coloured woods, they might need to harmonize with each other or if the woods vary in colour, they may need to contrast to give an aesthetically pleasing finish.

-Stakeholder. Because my stakeholder is young, an important part of my design is making sure it appeals to him. He must like the design and want to use it so it must be based on what he likes. Also because he is young, I must design my product around the toy safety standards for children.

-Fair Trade Act- Toy safety standards. As I move into drawing up conceptual ideas, I must work around the fact that my stakeholder is a young boy. This means not having dangerously sharp points or edges on my design and also remembering that any really small parts could be swallowed. But as he is now four years old, the choking risk would be minimal.

-Location. I must not design my solution too small for the choking hazard, and I also must not design it too large as it will not fit in the intended location. If it was too big the toy would not be used as it would not function properly in the area it is intended for.

-Legal. I can not copy other designs and replicate other products for my solution, but I am allowed to use ideas for inspiration when designing my concepts. I need to ensure I do not copy a whole design and claim it as my own as that would be breaching the copyright law. This is important in the design of my product as I will be looking at ideas for things like the way things can function etc.

-Function. The solution must function properly and serve its purpose. This means the features should successfully do what they are designed to do after a period of time-withstanding use. (Wear and tear) Any moving or interchangeable parts should function properly as these will add to the uniqueness of the product.

Needs and opportunities

Needs

-The finished solution will need to function to the requirements of my client.

This includes some kind of mechanical design and even parts that can change.

-It needs to be at a safe enough standard for Tom to use.

I must consider the regulations of the child safety standards.

-The solution needs to fit within the intended location.

The solution cannot be too large so that it cannot function properly.

-The finished product needs to be durable enough for a four year old to play with.

This means the solution must withstand the day to day wear-and-tear from being used.

-I need to receive regular feedback from my client to gain opinions and any modifications that will need to be done.

Opportunities

I have the opportunity...

-To work with a client and interact with a child stakeholder

-To increase my knowledge in wood technology

-To gain knowledge on children's toys

-To gain knowledge on children and their development stages.

-To design a solution that could one day be mass produced.

-To innovate the design to make it user friendly for Tom to use.

-To show an understanding of technological knowledge in wood technology.

- To demonstrate advanced skills and techniques in developing a technological outcome.

-To solve an issue that my client has by providing Tom with an entertaining and a mentally stimulating toy

-To possibly work with different woods and finishes I haven't used before.

Needs and Opportunities

Needs.

- The final solution needs to function to the requirements of the stakeholder.
- It needs to be safe for the stakeholder to use.
- I need to look at all aspects of child safety.
- It needs to fit in the given location.
- It needs to be easy to operate.
- The final solution needs to be durable and last as long as it's needed.
- I need to regularly speak with, and see my client for feedback.

Opportunities

I have the opportunity to...

- Gain further knowledge in wood technology practice.
- Come up with a solution that could be used by other children.
- Solve the given issue for my client.
- Work with a client.
- Work with a stakeholder and wider stakeholders.
- Create an innovative design that is user friendly
- Gain knowledge on children and their development stages.
- Demonstrate advanced skills and techniques in developing an outcome.
- Show an understanding of technological knowledge in wood technology.
- Create a quality product that works.
- Possibly work with different woods and finishes I haven't used before.

Confirmed and prioritised key factors.

1 -Legal. I can not copy other designs and replicate other products for my solution, but I am allowed to use ideas for inspiration when designing my concepts. I need to ensure I do not copy a whole design and claim it as my own as that would be breaching the copyright law. This links with factor 4 as my design will be based on what my stakeholder likes.

2 -Function. The solution must function properly and serve its purpose. This means the features should successfully do what they are designed to do after a period of time-withstanding use. (Wear and tear) Any moving or interchangeable parts should function properly as these will add to the uniqueness of the product. This links to factor 5 as the function of the solution will depend on the materials I use.

3 -Fair Trade Act- Toy safety standards. I will work around the fact that my stakeholder is a young boy so the product will not having dangerously sharp points or edges. The design will also not have really small parts could be easily swallowed. But as he is now four years old, the choking risk is minimal. This also links with factor 4 because the size and shape of the design will depend on what my stakeholder wants.

4 -Stakeholder. Because my stakeholder is young, my design must appeal to him. He must like the design and want to use it so it must be based on what he likes. I will also design my product around the toy safety standards for children. This links with factor 3- the Toy safety standards.

5 -Materials. The important point is the wood I choose to use will be durable enough to with stand being used by my stakeholder who is a four year old boy. The wood will also be aesthetically pleasing and appeal to him. This links with factor 6 because the materials will also need to be aesthetic.

6 -Aesthetics. The types of wood I choose to use must also look appealing when they are put together. If they are similar coloured woods, they might need to harmonize with each other or if the woods vary in colour, they may need to contrast to give an aesthetically pleasing finish. This links with factor 7 as the availability of the materials will depend on what the final solution will look like.

7 -Availability. The materials I decide to use must also be easily available to me. What the school doesn't provide I will have to purchase or find myself so they cannot be too expensive. Also, because I am making a small toy, I will only require a small amount of material so finding the materials in such a minimal size may be difficult. This links to factor 5 as the materials I choose to use will need to be easily available.

8 -Location. I won't design my solution too small because of the fragile ness and the chocking hazard. I will also not design it too large as it will not fit in the intended location. If it was too big the toy would not be used as it would not function properly in the area it is intended for. This links with factor 2 because the function of the design will depend on the size of the location it will be used in.

Feedback

I spoke to the Murphy family about my research of existing solutions and the ideas I have gained from looking at them.

I received feedback from all my stakeholders and my client about the style of toys I found.

Client (Kate)

Is there a specific size restriction for the toy I make?

Yes. It can't be too big that Tom can't carry it and not too small either.

Feedback:

I really like the Take-G toys that you have researched. They are an interesting and modern style of toys that I have never seen before. The variations in the wood looks really effective and I would like this style to be used in the one you make.



Stakeholder (Tom)

Tom pointed out that he really likes the Take-G toys over the normal examples of toys I showed him. I asked him the following questions;

After you have seen these Take-G toys, would you want me to paint the toy I make you or leave it all wooden? All wooden like these ones. They look cool.

Do you want the toy to have wheels?

Yes so I can push it.

Do you want the toy to have changing parts, like guns etc?

Yes.

Wider stakeholder (Shayne)

I think the styles of the Take-G toys are really effective and I think they would appeal to Tom more than the rest. I like the way they use the wood grain. You will have to be careful that the little parts aren't too fragile because Tom will break them in no time.



Wider Stakeholder (Grace)

I think Tom would like the Take-G toys because they look really cool and fun.

Planning

*Key Decisions have been made. Why?
My client and stakeholders decided that they like the Take-G style of toys the most. So I will try to use this style.*

*What I plan to do next...
I will now draw up some concepts that meet the requirements of my stakeholder.*

*People I need to see...
My client and stakeholder.*

*Key resources...
Computer,
Pens,
Paper.*

Client feedback... we really like the "Take-G" styled toys and so does Tom. We would love something like these.

Planning

Key Decisions have been made. Why?

Kate, Tom, Shayne and Grace have decided that they like the Take-G style of toys the most so I will try to use this style. But in doing this I must also be aware that I am not breaching the copyright act.

What I plan to do next...

I will now draw up some concepts that meet the wants and requirements of Tom

People I need to see...

Kate and Tom for feedback.

Key resources...

Computer to present pages.

Existing solutions for inspiration and

Pens and paper to create concepts.

Computers are always available and the existing solutions will be accessed via the internet as it is the quickest way.

Client feedback...

"We really like the 'Take-g' styled toys and so does Tom. We would love to something like these"

I have full use of computers so I will be using internet to research existing solutions because this is the quickest and most efficient way. It also means I will avoid any hold ups such as needing to make appointments etc.

Refined Breit

I am going to design and construct a wooden toy for my client Kate Murphy. The toy will be played with in the evenings by her four year old son Tom in the evenings while late is busy. The toy will feature parts that can interchange to help develop Tom's mental developments. The toy will feature guns and wheels so it will appeal to Tom.

and Specs

- The toy cannot be bigger than 300mm by 300mm to enable it to be used and stored in the intended location.*
- The toy must not feature dangerously sharp points or edges.*
- The toy must have wheels so it can move across different surfaces.*
- The toy must be appealing to Tom*
- The toy must be light enough for tom to carry, between 1 and 4 kilograms.*

Note

2/10/09 5:07:28 PM

Options

Commentary on Evidence

An opportunity existed for the student to better connect the findings he obtained from his interaction with his clients and research findings into the key factors he identified as being important for resolving the issue and brief he develops.

Research

These are examples of the quality robots built by Take-G.



A more simple design of person.

Little people feature moving arms/heads
Characteristic look.
I am interested in these designs.

Interesting space ship that would appeal to any kid. Could be quite heavy though?



These toys are not as detailed and are quite boring.



something with wheels maybe better as it could be heavy.



two functional and moveable people.
The craft looks very effective with the tones of wood
could be heavy to carry.

blending woods together contrast effect.

These are a pair of very interesting robots that would be very entertaining for any child.
The smaller parts could be fragile though.



effective stand (tripod) design

Another person design.



This robot would be top heavy and very fragile so it would not be suitable to play with. Although it would be a perfect model.

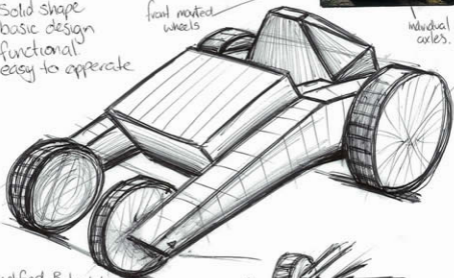
I have taken Toms love of Batman, I included some of the design features used on this Batmobile.



individual axles.

front mounted wheels

① 4 wheels
Solid shape
basic design
functional.
easy to operate

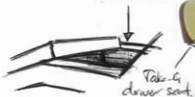


- Simplified Batmobile body design.
- bold & durable

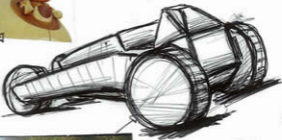


single axle wheel pivots on pin.
x 2.

driver seat.



Take-G driver seat.



Solid design.



The Batmobile. larger rear wheels.

rear wheels attached similar to front
either 1 large axle
or 2 smaller ones
on each side?

Each year Americans alone spend over twenty-four billion dollars on toys for their children. Most of these toys are disposable and are enjoyed for a few years, at best. They are made on high-speed automated machinery, untouched by human hands. Much of the price paid goes for packaging and advertising, rather than the toys themselves. Part of a toy's cost funds the creation of children's television; which is designed to instill desire in children for a toy manufacturer's latest products. This year's hit movie will spin off a complete line of toys that will need replacing when the next blockbuster film is released.

Remember the toys that were part of your childhood. Do you think today's children will have similar memories of Teenage Mutant Ninja Turtles or Mighty Morphin Power Rangers? I hope your children will remember you when their child gallops away on the horse you made thirty years earlier. I hope they have a set of wooden blocks or a special doll from a special aunt.

So few things in life are permanent today. We need to cultivate memories to insure they are always vivid.

John Michael Linck Toymaker

②



Simple body design,
3 wheels.
bold
basic
durable.



individual axles
- parts of
rotation.

3 wheels

would have to
be thicker to be
durable.

driver's
seat.

easy to
access

↑
3 wheel
styled Take-G
Toy. My design
feature two
wheels at front
& one at
rear

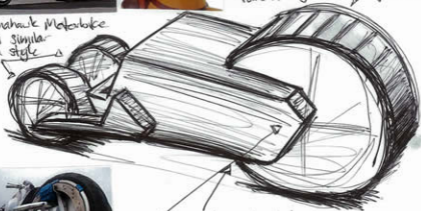


This Tomahawk Motorbike
features similar
design style



driver seat from
Take-G toy.

↑
thick wheel
gives balance.



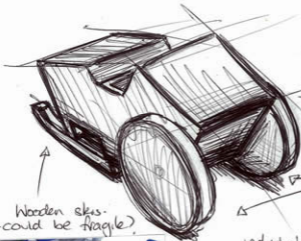
one large wheel at rear.
motorbike style. One axle.



Similar style of rear wheel
attachment. one axle.
Simplified design for
wood though.



3



too basic?

Wooden skis - could be fragile?



driver seat

rear wheels like previous concept. thinner

individual axle or joint?

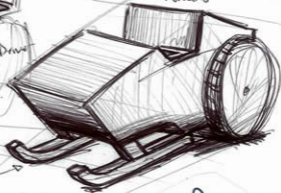


front mounted skis. A change from "wheels"

simple solid functional only 2 wheels.



A Take & Drive Seat. A simple hole.

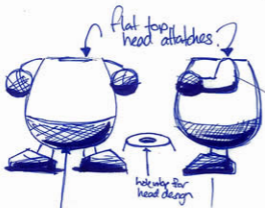


Like the snowmobile this design features skis on the front rather than wheels.



I need to design 2 body that can house change able heads. the body will be the driver of the vehicle.

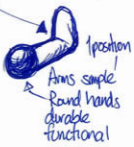
①



flat top head attaches.



similar design to Take-G body



1 position
Arms simple
Round hands
durable
functional

different colored underside - represents pants.

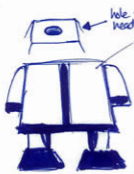


Rounder body



feet. solid
hides weight of figure
large & stable.

②



hole in top for head connection
square & solid body design.

square design like other Take-G designs



Simple arms
Solid design.
darker wood for hands

More basic design. square.



Similar feet to concept 1. strong & durable.



I need to decide on two head designs that will be built and will alternate on the single body.

1



The head with a part to connect to body.



2



Mohawk simple made from wood



Mohawk on top of head Adds character.



This character from "Robots" features the style of mohawk.

3



Simplest design. cone head shape.

Same eyes as concept 1 & 2.



These Take-G Designs have a similar cone head design.



Planning

Key Decisions have been made. Why?

I have decided on three main possible concepts for the solution. I have also designed some other major features of the solution that could be used. (The robots) I have chosen these concepts because I believe they would be the most effective in addressing the issue.

What I plan to do next...

I will now do some concept screening to find out which design my client likes so I can then move forward and develop it.

People I need to see...

My client and stakeholder for feedback on my concepts

Key resources...

*Computer to present pages,
Concepts to analyze.
Computers are always available*

Client feedback...

-There is no risk of any hold ups as there are always computers available.

Concept screening

I showed the concepts I drew up to my client and stakeholder and received the following feedback...

Vehicles

	Likes:	Dislikes:	Success:
Concept 1	<i>Kate: "I like the look of the vehicle. It is very interesting" "It is also great because it is like a car in the way that it has 4 wheels" Tom: "It looks real fast"</i>	<i>Kate: "It would need changeable parts"</i>	✓ ✓ ✓ ✗
Concept 2	<i>Kate: "It's different" Tom: "I like the little sitting part where the driver goes"</i>	<i>Kate: "It's not as interesting as concept 1" Tom: "I don't like the big wheel"</i>	✓ ✓ ✗ ✗
Concept 3		<i>Kate: "I don't think Tom understands the snow ski-sled idea yet" Tom: "I don't like the wheels"</i>	✗ ✗

This concept screening shows that vehicle concept 1 is Tom and Kate's favourite out of the three. I agree with this decision as I think it will be the most durable. This concept also offers perfect opportunity to be developed as Kate wants it to include changeable parts.

Concept screening

Bodies

	<i>Likes:</i>	<i>Dislikes:</i>	<i>Success:</i>
<i>Concept 1</i>	<i>Kate: "I like the friendly appearance of this body"</i> <i>Tom: "I like it"</i>	-	✓ ✓
<i>Concept 2</i>	<i>Kate: "Could be durable"</i>	<i>Kate: "It's more robot like rather than human."</i> <i>Tom: "It's too square"</i>	✗ ✗

Heads

	<i>Likes:</i>	<i>Dislikes:</i>	<i>Success:</i>
<i>Concept 1</i>	<i>Kate: "It has a happy and friendly appearance"</i> <i>Tom: "It looks cool with a hat"</i>	-	✓ ✓
<i>Concept 2</i>	<i>Kate: "Also has a happy face"</i> <i>Tom: "It looks cool with the Mohawk"</i>	-	✓ ✓
<i>Concept 3</i>	-	<i>Kate: "It's quite plain and boring"</i> <i>Tom: "The head is too pointy"</i>	✗ ✗

This concept screening shows Tom and Kate's favourite concept for both the body and the heads. Concept 1 is the chosen body and concepts 2 and 3 are the chosen heads.

Planning

Key Decisions have been made. Why?

From doing the concept screening, I have decided on the concepts I am going to use and develop. This means I can move to the next step of mock ups.

What I plan to do next...

I will construct models of the concepts I will use. This will help me decide on things like size etc.

People I need to see...

Key resources...

Computer to present pages.

Modelling clay

MDF wood for model

PVA glue

Computers are always available.

The Materials are also available at school.

Client feedback...

"Concept one is our favourite out of the vehicles, concept one is our favourite body design and concepts one and two are our favourite head designs."

- I know that the school has a large supply of MDF and PVA Glue so there will be no hold up accessing these. I also know the art department has Modelling clay that I can use.

Modelling

I decided to use clay to construct the models of the robot people. I chose clay because the way I designed them is very unique. To make wooden models of these would take hours on the lathe. Clay is a quick way to construct the shapes I want and it is easy to make changes if something doesn't work out.



Cut chunks of modelling clay into basic body shapes using wire.



Manipulated and perfected the clay to suit my concept designs



Added details and features (Face, Mohawk etc) to work out proportion sizes



Moulded the body shape to suit my concepts. Sized it in proportion to the heads



Added legs and feet. These had to be strong to hold the weight.



Moulded arms and added them to the body. These had to suit my concepts also.



The final design, with the first head in position. I am happy with this design.



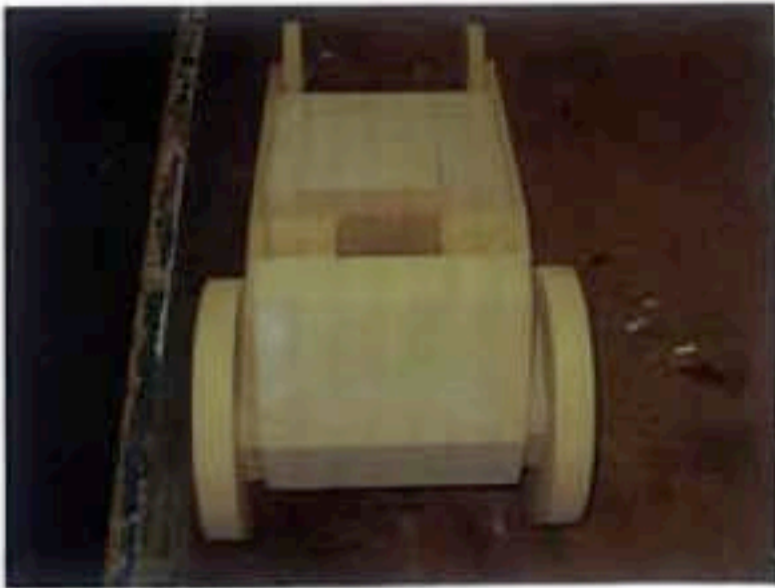
Am also happy with the second head and the way it looks on the body.



The final models dried and set hard. I am happy with the outcome so no changes will be made to the designs.

Modelling

Here I have created a model of the vehicle that I intend to make. I used MDF to construct this model because it is easy to work with and is easy to get hold of.



The main part of the vehicle consists of 7 pieces of MDF cut into shape and glued together. 4 wheels cut from MDF (2 large, 2 small) and 2 extra pieces of MDF that connect the front wheels to the chassis. I have constructed the model to the correct size but I have decided that for my real product, I will make it a bit bigger so it will fit the toy drivers in it more easily.



Note

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Options

Commentary on Evidence

An opportunity existed for the student to evidence how he used his model to test the potential of his design concept. Such evidence could have included photos of the child interacting with the toy where the ergonomics of the toy were explored, the child's mother interacting with the toy and/or findings from such testing.

Planning

*Key Decisions have been made. Why?
I have decided that I am happy with the concepts and the outcome of my models. I will make the real vehicle a bit larger to fit the drivers better*

What I plan to do next... I will now develop the concepts I have chosen to make them more innovative and fit the issue better

*People I need to see...
Client for feedback*

*Key resources...
Pencils,
Felt markers,
Pens.
I have many pens, pencils and felts.*

Client feedback...

"I think the models you have made are really cool. I hope the real toy comes out like these have."

-I can draw up the developments straight away as I own the necessary equipment.



- two guns will be added to the vehicle. - one on each side.



- Different designs with dowel plugs



- two spotlights will be added to the sides of the vehicle - one on each side.



- Different designs with dowel plugs



Simple to use dowel plugs allow parts to interchange

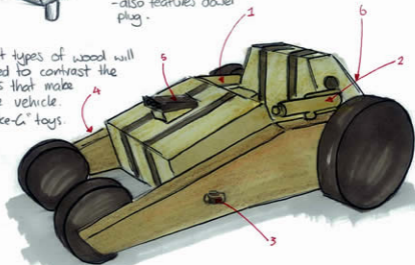


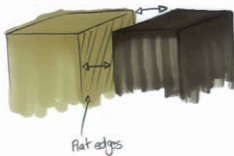
- supercharger will be added to center of vehicle.
- also features dowel plug.



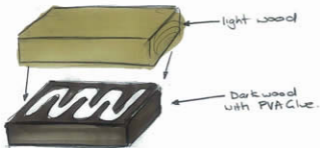
- dual exhaust pipes glued to rear.

different types of wood will be used to contrast the colours that make up the vehicle.
- like "take-a" toys.





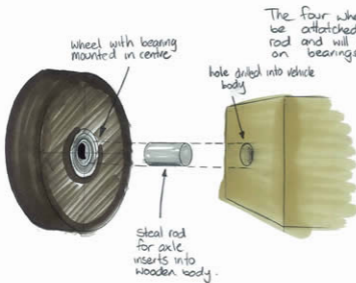
To create the "Take-G" look of contrasting dark and light wood, I will glue pieces together to create the unique look. The wood will have to be perfectly flat so the will glue together evenly.



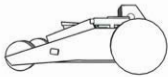
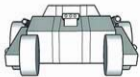
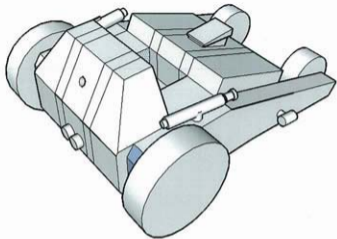
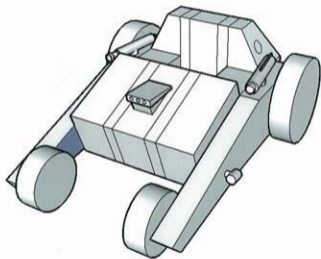
-All wood will be glued with PVA glue as it is extremely strong and cheap.

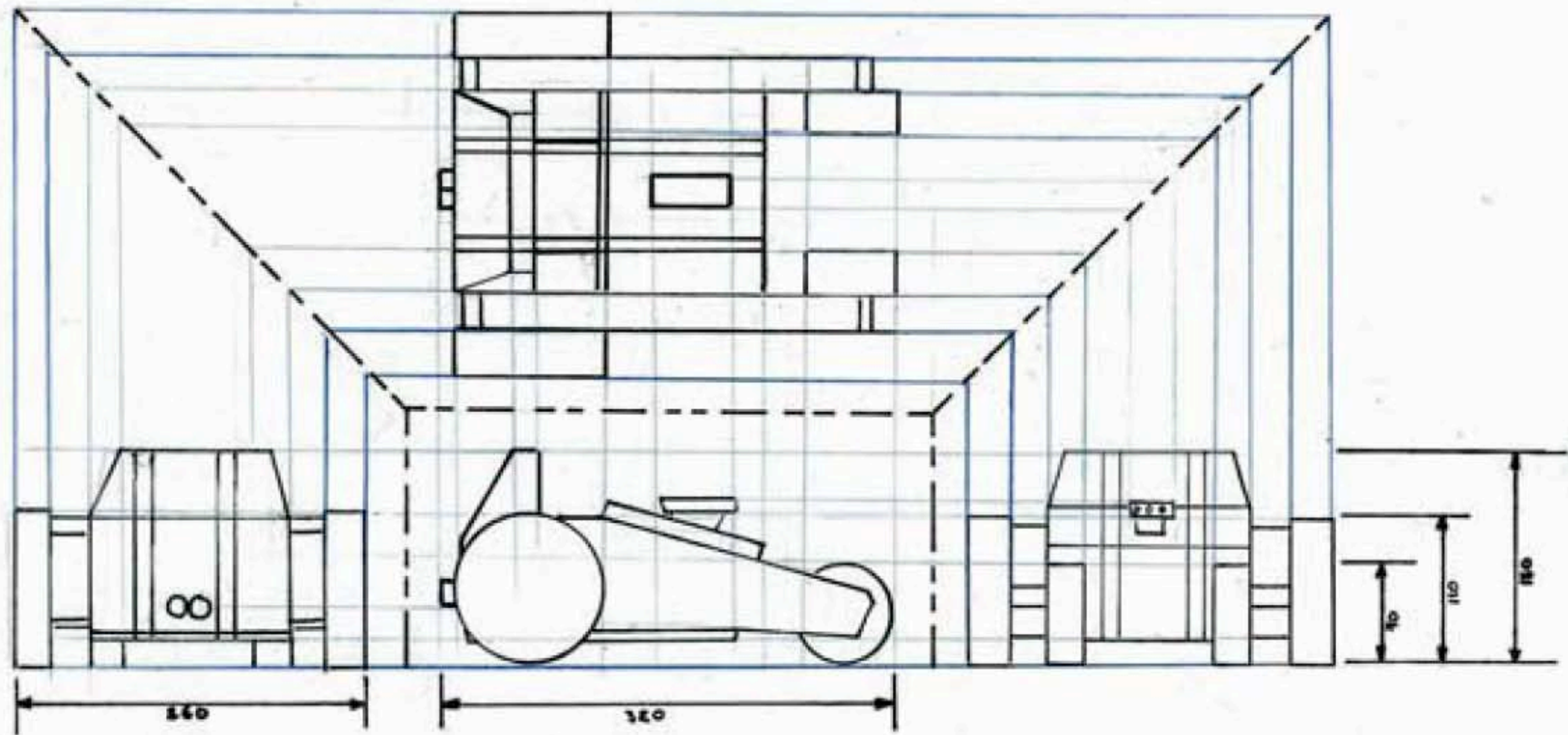


Examples of Take-G Toys being manufactured
-Dark and light woods glued together.



The four wheels will be attached using steel rod and will spin individually on bearings in each wheel.





1:5

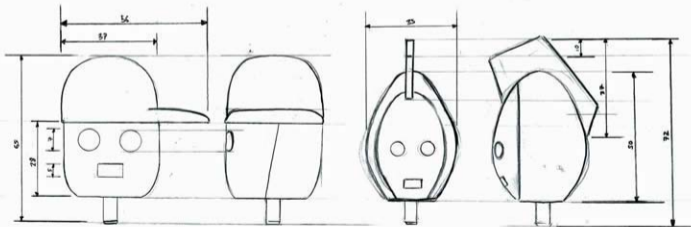
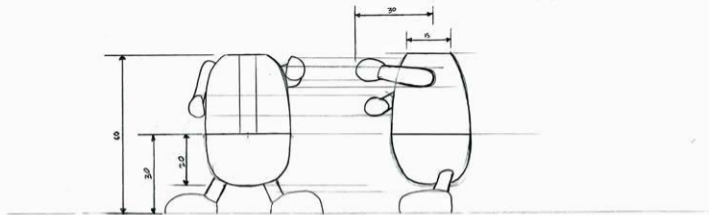
Note

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Options

Commentary on Evidence

Very good use of graphics to communicate the design features included in the toy.



Planning

Key Decisions have been made. Why?

I have decided on the features I am going to add to my design to make it more effective. This will make it more challenging for Tom to use

What I plan to do next...I will now explore the materials I could possibly use to build my solution. This includes the different wood types.

People I need to see...

My wood technology teacher for advice on wood types.

Key resources...

Computer for presenting pages
Wood type information
Internet.

I have access to computers to use the internet to research materials.

Client feedback...

"I like the developments you have made to the designs. I don't mind the guns being added as these are what Tom likes. They are not going to offend anyone here at home"

- I will use the internet which is always available to research different material types. I also own a woodwork book that has a lot of information on wood types.

Materials

Beech

Characteristics of the wood: Whitish brown when first cut, the fine even-textured straight-grained wood deepens to yellowish brown on exposure. It is also a strong wood, excellent for steam-bending, and when seasoned is tougher than oak.

Common uses: interior joinery, cabinet making, turnery, bentwood furniture.

Finishing: It accepts stains well, and can be polished to a fine finish.



Irrah

Characteristics of the wood: This very durable wood is strong, hard and heavy, with an even medium-coarse texture. The heartwood is a light to dark red when first cut and deepens to red-brown. The grain is usually straight.

Common uses: Building and marine construction, exterior and interior joinery, turnery, decorative veneers.

Finishing: It polishes very well, particularly with an oil finish.



Pine

Characteristics of the wood: Although this wood is soft, weak and not durable, it is stable. It has a straight grain, a fine even texture, fine resin-duct marks and inconspicuous annual-growth rings. The colour varies from pale yellow to pale brown.

Common uses: High class joinery, light building construction, furniture, engineering, pattern-making, carving.

Finishing: It accepts stains, paints and varnishes, and polishes well.



Materials

Red Cedar

Characteristics of the wood: Although relatively soft and brittle, the non-resinous aromatic wood is durable; after long exposure to weathering, its reddish-brown colour fades to silver-grey. It has a straight grain and coarse texture

Common uses: Shingles, exterior boarding, construction, furniture, cladding and decking, interior panelling.

Finishing: It accepts paints and varnishes well, and can be brought to a good finish



Kwila

Characteristics of the wood: Kwila is hard and strong. The heartwood is yellowish-brown in colour when freshly sawn and weathers to dark brown. The heartwood; grain may be straight or slightly interlocked and sometimes wavy; texture is often lustrous. Turns well.

Common uses: Exterior furniture, decking, panelling and flooring.

Finishing: Timber stains and polishes well.



As I only need to use three wood kinds, the ones I have chosen are Kwila, Beech and Cedar. I chose these ones because they all feature contrasting tones which will look really effective when glued together. Each of these woods are available to me as I have off cuts Kwila at home and can order the other two. The reason I did not chose pine as it is a really commonly used wood because of its availability. As I wanted to use something I hadn't used before, I chose Beech as it has similar qualities to Pine but can be lighter in colour. This will increase the contrast between the woods and give the look I am after. Kwila is a better option for the darker wood than Jarrah as it is easier for me to access and is not as red in colour. Finally, Cedar is what I will use for the third wood as it is easy to work with and is coloured between Beech and Kwila.

Final Brief

I am going to design and construct a wooden toy for my client Kate Murphy. The toy will be played with in the evenings by her four year old son Tom. The toy will consist of a main vehicle on four wheels and will have detachable and interchangeable guns. The toy will also feature a robot body that will have two interchangeable heads. This toy will be manufactured using three wood types that contrast in colour tone to give a modern and unique appearance. This toy will help to develop Tom's concentration skills as he figures out the different parts and where they can go. The final toy will hopefully be able to keep Tom occupied in the evenings.

and Specs

- The toy will be 320mm long and 260 mm wide so it can fit and function in its location.*
- Considering the physical limitations of Tom, the toy must be between 1 and 3 kilos so he is able to properly use it.*
- The toy must have wheels that can operate on a wooden floor as well as on carpet rugs. These will be 110mm and 90mm in diameter to ensure their function.*
- The toy must meet the child's toy safety standards of the consumer guarantees act. This means it cannot have dangerously sharp points and no parts that could be easily swallowed.*
- The toy will have robots and interchangeable guns so Tom can entertain himself for a period of time.*

Evidence of making



This pictures show the different types of wood used in my project. These are the darker woods. (Cedar and kowela) The pictures are taken before I cut the wood to size.



By gluing the different woods together, it gave the sharp contrasting look I wanted. Here the woods are clamped together and are drying.



This picture shows the wood that has been glued together and I have drawn pencil guides for when I turn it on the lathe. This will become a head.



Here I am cutting pieces of wood to size and turning the wood on the lathe. These pieces formed the guns that will be mounted on the sides of the vehicle.

Evidence of making



These pictures are of me constructing the wheels. I rounded them on the sander and drilled the centre of them to mount the bearings. I used the sander to round them because it allows me to turn them easily while they are being sanded. And if done properly- it can be quite accurate.



This is a wheel with the bearing mounted in the centre of it. These are a tight and perfect fit so they will not need to be glued in.



This is the body of the vehicle glued together. It also shows the small steel rod pieces that I glued into the wood. These will be glued into the bearings of the wheels.

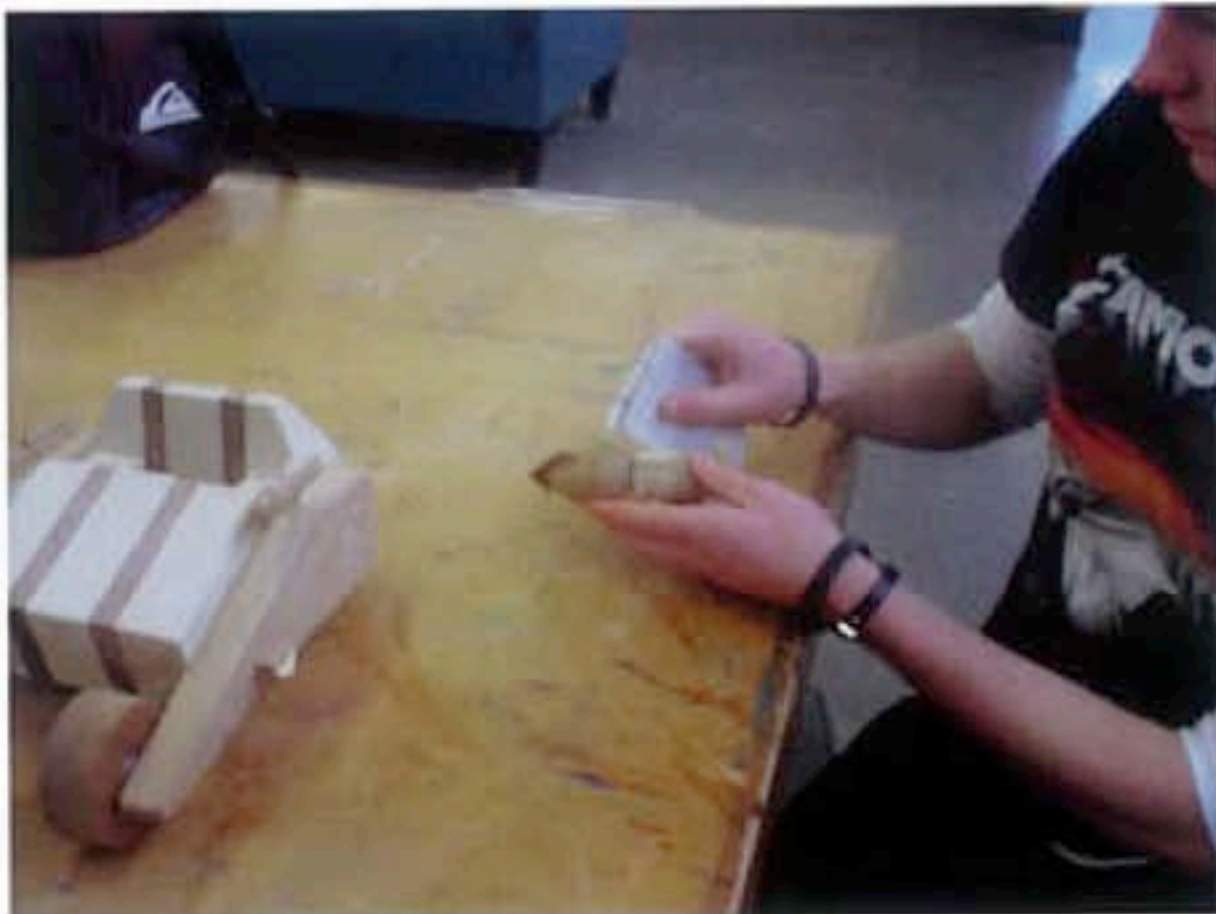
Evidence of making



This shows the guns all finished and glued together.



Here the guns are mounted into the vehicle on each side.



I finally then sanded all the parts including the robot body. This picture shows me doing this with light sandpaper.



Note 2/10/09 5:10:06 PM
Options

Commentary on Evidence
A good use of photographs to show the skills and processes used to make the toy.

Codes of practice

Protection.



Safety goggles need to be worn whilst operating machinery in the workshop. These protect your eyes from flying debris.



Hard covered shoes must be worn anytime in the workshop as they can stop falling tools and materials from injuring your feet



Ear muffs need to be worn when operating loud machinery to protect your hearing.

Machinery.



Pillar drills (or a drill press) is a heavy duty machine tool and is very useful in a work shop. Pillar drills can be bench or floor mounted, and are ideal for precise, repetitive drilling. A depth gauge can be set to determine the depth of a hole, while a guard helps to prevent any obstructions or clothing from getting in the way of the rotating chuck.

I used this machine numerous times whilst manufacturing my toy. I used to drill out the holes in the wheels where the bearings would be mounted, and also, I drilled the holes in the toy that would house the changeable features such as guns etc.

Remember to never wear loose clothing while you are using a piece of machinery.

Codes of practice



The belt sander is used for sanding wood and removing excess material. Belt sanders are useful as they can clean up the edges of a piece of wood that would be too thin to remove on a band saw. Although the band saw is quick and effective, they are not recommended for being used for the final sanding and finishing. The belt sander needs to be used carefully as it is very easy to remove more material than is intended.

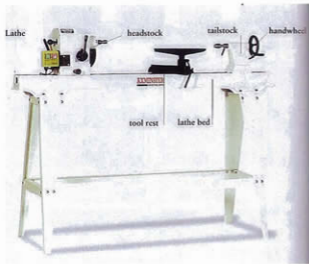
I used the belt sander through out my project as it was a quick and effective way of cleaning up the wood and shaping it to size.



Band saws are the best machine tool for intricate and fine sawing. Various thicknesses of blade and different sets of teeth mean that quite small curves can be sawn, and the large blade makes it an extremely good general-purpose machine.

I used a band saw many times during my project to cut the wood to the specific size that was required. It was simple to use as it was quick and did not ruin the wood as some saws can.

Codes of practice



The lathe is used to turn timber using a motor that drives a series of belt-type gears. It is used to create circular shapes out of wood such as chair legs, bowls, and stands.

I used the lathe many times during my project to create the robot's body and two heads, and the guns that mount to the vehicle.



An overhand grip should be used for rough cutting

An underhand grip should be used for making finer cuts.



The correct stance when using a lathe.

When using a lathe you need to make sure that you are working accurately and safely at all times.

When it is operating, the lathe should be set at such a height that the centre of the turned object is approximately at the height of your elbow. Stand face on to the lathe with your feet apart, and tuck the tool into your body. If you stand too far away from the lathe, you will be forced to lean forward and will lose some control.

Construction flowchart

1. Located 3 → types of wood.
2. Measured and → cut to appropriate size.
3. Glue the → woods together using PVA and clamp together.
4. Cut the → pieces to shape that form the body of the vehicle.
5. Glue these → together and clamp. ↓
6. Cut side → forks that wheels will mount into.
7. Drill holes → into the side forks that will house the wheels and guns.
8. Glue these to → each side of the main vehicle body.
9. Cut wheel → shapes out.
10. Sand wheels → to shape on sander ↓
11. Drill centre → of wheels and insert bearings
12. Cut → steel rod into 4 pieces.
13. Glue → these rods into each side of the vehicle.
14. Cut → out more wood for robots
15. Glue → the pieces together and clamp ↓
16. Draw → guides on the wood for the lathe.
17. Using the → lathe, turn the body parts and head.
18. Drill a → hole in the top of the body for dowel housing.
19. Drill a → hole in the bottom of each head and glue dowel into each.
20. Glue → arms and legs onto the body. ↓
21. Cut → out more wood for guns
22. Lathe → these pieces and make the guns.
23. Drill → holes in each gun to house the dowel
24. Glue → dowel into each gun.
25. Glue → the steel rod on the wheels into the vehicle. ↓
26. Sand all → the parts thoroughly
27. Spray → each part of the body, guns and robots with a clear coat finish.
28. Repeat No. → 27 until satisfied.

Feedback

Kate (client): "I am impressed with the outcome. The toy looks amazing and Tom is absolutely wrapped with it. The attention to detail is really good. I like the fact that things on the toy can change. The interchangeable parts were a really good idea because they provide Tom with something he has to think about. He loves these types of mental challenges and I can see him spending a lot of his time playing with it. The contrast in the wood types looks really effective because it is different from most toys in shops today. The toy is a perfect size to be used here in the living room and it is not too heavy for Tom to lift. The safety standards of the toy are absolutely fine as Tom can now manage small parts. The design of the overall toy is really robust so it should last a life time. The wheels and the neat guns are so cool and they work so well. This toy is amazing and will not only be very special to Tom, but our whole family in all the years to come."



Tom (stakeholder): "I really, really like the toy. It is very cool because the guns stick out. I like the robots Mohawk in the middle. When you put a gun on the robots body with no head its really funny. This is my favourite toy and looks really fast."



Shayne (Wider stakeholder) "The toy is great. I think it will really serve its purpose well. The colours of the woods look really tidy together. Great skills involved. Good job"



Grace (Wider stakeholder) "Tom's toy is so cool. I like the little robots. I think it's a good size to go in this room. The guns look good."



Evaluation

I believe the solution I have manufactured has solved Kate's issue extremely well. The toy I have designed and made is perfect for Tom to play with in the evenings and I believe it has the potential to keep him occupied for the period of time in which Kate cooks dinner.

The design of the toy means Tom can actually think about what he is doing as the parts can interchange in to different locations on the toy. This will keep Tom mentally stimulated as he figures out what goes where.

I have designed the solution to be able to fit comfortably in the intended location which is the living room of the Murphy house. It is designed to be stored on display on top of a toy chest which it does fit perfectly. The toy does function properly and can be easily and freely pushed along the ground because of the bearings I fixed into the wooden wheels. I believe the aesthetics of the toy have met Tom's expectations because as soon as he saw it, he started playing with it straight away. I am also pleased with how my solution looks because the idea of contrasting the different kinds of wood worked out perfectly.

I managed to keep the sharp lines where the wood joint together. I think using "Take-G" toys as an inspiration for my designs was a good decision because I got the idea of using the contrasting woods from them. Also, the idea of having small robots to operate the vehicle was originally inspired from their toys.

The safety standards of the toy were quite an important factor when I was first designing the concepts. I am pleased with the way the safety standards of the toy as I designed it to feature no dangerously sharp edges and no extremely small parts that could be swallowed. Therefore it is perfect for a four year old to play with.


I am pleased with the planning I did during this project as it helped me to anticipate and avoid any problems that could have arisen. By continuously planning ahead, I was able to minimize any possible problems and maximize any opportunities that were presented (such as increasing my technological knowledge.) I avoided wasting time by planning ahead and preparing for any issues that could occur such as such as my client being unavailable to give feedback on a vital decision. By doing this, I was successfully able to complete the project without any major hiccups.

To conclude, I believe this project has been a complete success in the way that it solves the issue I was faced with and my client Kate, my stakeholder Tom, and my wider stakeholders Shayne and Grace are completely happy with the finished solution and it will remain very special to them in years to come.





 **Note**

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Options 

Commentary on Evidence

An high-quality technological outcome that has been tested and evaluated to be 'fit for purpose'.

Future viability.

The future of this product could mean a mass production to be sold in toy stores around New Zealand. If I was to do this I would definitely look at setting up special jigs to get the parts made quickly and efficiently. This is because the way that I did manufacture the toy was partly trial and error as I progressed, but it worked fine for a one-off solution. I would create a quicker way of mass producing them by making them in a group of maybe half a dozen rather than one at a time. Doing this would save me a lot of time because the drying of the glued parts is what takes up most of the project time. I think the sale of these toys would be a huge success after the feedback I got from my original client and stakeholders. The uniqueness of the toy would make it especially successful as I do not know of any toys for sale around Hawke's Bay and New Zealand that are similar in any way. A further step I would take is designing other kinds of vehicles and robots to create a series of them. I would look into doing a similar thing to "Take-G" toys and start a whole line of these unique toys.

If I was to re-do this project, I would look further into the design and development of the robot limbs. The way I have designed them, is quite small and they are glued on and therefore do not move. I would look at making these arms and legs a bit larger and creating a way to make them move up and down and possibly rotate on the body. If I had made the current ones moveable, they would be too fragile and would not last long after being used by a four year old boy.

Technologists

Who: Nalin Roselea.

What: Mechanical Consulting Engineer, Ensor Consulting.

In a nutshell: Designing air conditioning and hydraulic (water) systems as well as smaller projects.

Why: "I like designing something that solves a problem"



-Nalin Roselea has a BTech in product development which he gained at Massey University.

After meeting with Nalin earlier in the year, I am able to identify how his work in the real world relates to my current technology project. Although he mainly works in air conditioning, his technological practice links with mine as he uses a similar process. As he is a product designer, he is always working one on one with a client- like myself. He works with clients who give him the initial specifications and requirements for the project. The client will come to him, or his company to identify an issue that needs to be solved. At the beginning of my project, I explored possible clients that had a suitable issue for me to solve.

One thing Nalin quoted was "Don't be driven too much by clients ideas". This was interesting to hear from a real technologist as he then said "the client can tell you what they like and prefer but in the end it's your design and you know what works best". I applied this way of thinking to my project in the conceptual stage as my client initially told me what she wanted and I based the whole design on what I thought would be best after researching existing solutions. Although, at the same time I did refer back to my client now and again just to make sure she was happy with what I had done. (The product was for her after all.)

As my project was for a young child there were safety standards that I had to abide by. This was the consumer guarantees act of toy safety standards. I had to look into these standards as my toy had to be safe to use. Nalin said "there are standards and requirements for everything". In his job the constructions he designs have to meet a certain quality and standard of safety. -As does mine.

The steps in Nalins project process include identifying a brief/issue, brainstorming ideas, client feedback, selecting a concept, and construction. These are the basic steps which I also followed to develop my solution. I believe these are the steps to success in any technological process that requires the solving of an issue.

Who: Peter MacLean

What: Designer of contemporary, individual and superbly crafted interior and garden furniture.

Why: I enjoy working with a sustainable material to make quality products.”



-Peter runs his own successful workshop in Clive, Hawkes Bay

From speaking with Peter MacLean, I can also relate to his technological practice. Although he manufactures a lot of his products and sells them straight off, he also sometimes works one on one with a client to produce a solution that is one off and completely custom. Like him, I worked one on one with a client to produce a product that suite their needs.

I can relate my project more to this technologist as he uses wood to create his solutions. He explores possible materials, as I did, to decide on the most suitable for the issue. The factors he would consider when choosing a wood to use would be similar to mine. These are the colour of the wood, the grain, the way it finishes, how well it turns, how well it glues, the price of it, and the availability of it. As Peter also uses a lot of wood, he ensures that the wood is coming from a sustainable source.

Peter also works by the consumer guarantees acts as the products he manufactures need to maintain a level of safety, especially the ones that are intended for children. The toy safety standards mean that things he makes like tricycles need to have no sharp points and no parts that could be swallowed. I also worked by this act as my toy was intended for a young child so the safety standards were a key consideration in the development of my toy.

As Peter works with clients, he also works by their wants and requirements to produce a product that solves that client's issue. He would look at the location it is intended for, the style of the location, the people who would use it and the type of people who it is for. This leads on to the colour, function, and aesthetics of the solution to make it a success.

As Peter also usually works in a time frame, he looks into the quickest and least complicated ways of producing the products. If he is making more than one product, he will build jigs to help him create the parts quicker which saves him time in the long run. When Peter is unsure of how he is going to build something, he will make a model, as I did, to figure out the size, shape, functional aspects, and how the overall product will be put together.

In conclusion, the two technologists I have spoken to, and researched, both follow the basic technological process even though they have completely different jobs. This process includes finding the client, identify an issue, researching existing solutions, sketching up concepts, developing the idea, manufacturing, and then the client feed back. Also during this process between each stage ongoing feedback from the client is needed to ensure the solution is what the client wants, and also, if it is still going to solve the original issue.