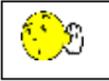


1. What is the design challenge? What are the requirements of the design challenge? (3 min.)

(tell what the task is – instead of ‘make a cool car’ clarify with ‘make a cool car that will roll two feet on a flat surface and is made of at least 4 different materials)

2. What requirements does the person or animal have that need to be in the design?

(i.e., Imagine you are a cat, what would make a pet carrier for you comfortable? Or, ask the person you are designing a lunch box for what they need. This step involves imagining, empathy, questioning and listening.)
What do you or your partner look for in the item you are designing? (2x 3 min.)

Questioning  Listening  Empathy 

- this part is key to feeling what the need is for, and for hearing what the other person is saying – interview, paraphrase and document key points – not word for word
- try to not evaluate the ideas at this point – focus on active listening and recording
- this is a fantastic place to pause and develop rich vocabulary both in first and second language – so be prepared to spend lots of time fleshing out new words that will become part of active vocabulary both during and after the activity

3. What else might I need to know before starting? (time flexible)

(Sometimes more information is needed before designing, i.e., how big is the cat that I am designing the pet carrier for? You can find the answers in books, on a computer or by asking someone.)

- this section may or may not apply to varying degrees – it is a point to consider during the conversations so is worth mentioning
- some design processes may not require this step so teachers can use their discretion

Look in books  Use a computer  Ask someone 

4. Sketch your design (3 different ideas.)  (6 min.)

Key ideas –

- draw quickly, not too much attention on getting each detail right
- provide time prompts as this section progresses
- encourage one design to be as wildly imaginative as possible
- can add a few labels for clarification
- consider ‘no erasing’ as a criteria
- push for variety in ideas - we want creativity which does not come from only the first plan

5. Ask for feedback from your partner about all of your sketch ideas. (2 x 3 min.)

Questioning  Listening  Empathy 

- Value all of the efforts in the sketches without judging
- Ask critical questions to stimulate the creative process i.e. “How did you solve...” or “What makes the device do...? Or “What would be the best material for ...”
- Have each person explain which is their favourite design and why
- This is a time for sharing of ideas to improve each design as well

6. Re-design and re-sketch your best idea, based on the feedback.  (3 min.)

- After completing Box 5, go back to individual space to revise and improve best design
- Use feedback from partner to guide revisions as well as your own ideas
- QUIET time – only individual sketching efforts for this period

7. Between you and your partner (or group), choose one of your designs to make. Sketch it. (6 min.)



- This stage requires negotiation and often some compromise
- The chosen design can contain elements from all partners
- Everyone must be in agreement about which design to use
- Some groups will use most of their time choosing
- Once ALL team members have sketched the same design that has been chosen, construction may begin
- Not all teams will work through this at the same pace

SAFETY - before the build phase, or at the start of the session:

- Go over the materials area (pantry) where there are shared resources to be consumed
- Show where the stations are for tools that do not move (hot glue table, sawing table, exacto knife table)
- Demonstrate safe use of specific tools (or even better, demo this in the days prior to challenge)
- Mention first aid protocols
- Safety glasses where applicable
- After the build, reuse or deconstruct any materials that can be repurposed for a future challenge

8. Make it! Test it! Re-design it!



- Time will be flexible based on the nature of the challenge
- Give a set time and announce time remaining from time to time
- Early finishers can have an extension “What if...”
- Leave ample clean up time BEFORE the gallery walk – good modeling of workplace etiquette and a very important job skill

9. Do a walk around where each team presents their project to the class.

- Celebrate each group as they present!

10. My reflections...

