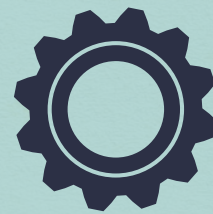


# TEACHER'S GUIDE TO **DESIGN THINKING FOR EXHIBIT DESIGN AT SINGAPORE ZOO**

A step-by-step guide to help you and your students in the design thinking process.



STEP 1

# DEFINE



We aim to provide the best care possible for our animals in the parks. Well-designed animal exhibits help our animals thrive under human care, and keep our animals, staff and Zoo visitors safe. They also provide Zoo visitors opportunities to connect with our animals and nature.

## Task brief

How might we...

**design an exhibit that is suitable for your animal so that it can thrive in a zoo?**



In the Design Thinking process, Define might come after a phase of Discover & Empathise. For this case, the task has been defined for you.



## STEP 2

# EMPATHISE



During  
Class Time

### Understand the target audience/user through:

- researching on the chosen animal
- observing the animals and the existing exhibit

## Introductory questions:

- Who are the 'users' of the exhibit? (the animals, keepers and Zoo visitors)
- What do you think the exhibit designers consider when they design an exhibit?

**For this Learning Journey, we are focusing on the animals as the user and what they need in an exhibit.**

*Pre-trip research. Find out...*

- What is the animal's natural habitat? How would you describe it?
- Which part of the habitat does it like to stay in?
- How does it move?
- What does it eat?
- How does it find and get its food?
- Is it solitary (lives alone) or social (prefers to live with others of its kind)?

# RESEARCH SHEET

Note down what you have found out about your chosen animal.



## STEP 2

# EMPATHISE



45mins

### **Understand the target audience/user through:**

- researching on the chosen animal
- observing the animals and the existing exhibit

*At the animal exhibit...*

- What is the animal doing?
- Which part of the exhibit is the animal at?
- Do you see the animal interacting with another animal or a part of the exhibit?
- Has the animal been placed alone or with other animals?
- How do guests currently view and/or interact with the animal?
- What are some interesting objects you can spot in the exhibit?
- Can you spot anything that might be upcycled? What do you think those objects are made of?
- How do we prevent the tiger from escaping?
- What do you think works well and what would you change?

# OBSERVATION SHEET

Draw or write any observation you make about the animal in its exhibit.



## STEP 3

# IDEATE



10mins

**Based on what you have found out about the animal,**

- be creative
- build on other's ideas
- defer judgment

## Instructions for the students:

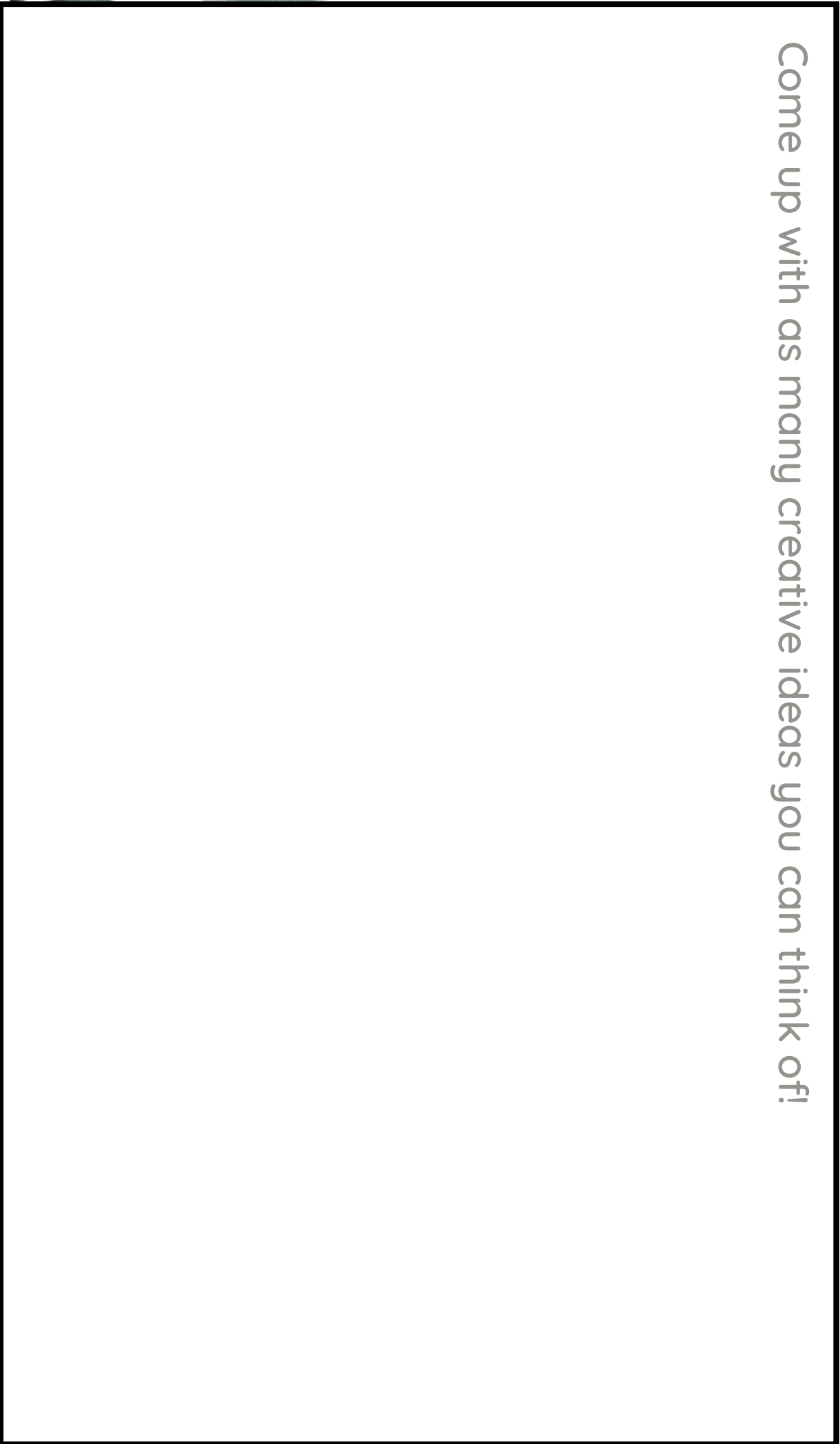
- **Brainstorm with your group.**
- **Come up with as many ideas you can for an exhibit that is suitable for the animal**
- **You have 10mins to come up with as many ideas you can!**

## *Facilitative questions...*

- **What are some interesting materials that you are thinking to use?**
- **What can we provide the animal with that is durable yet able to let it feel comfortable and safe?**
- **How can we increase grip on the branches?**
- **Can you think of a different way to...**

# IDEATION SHEET

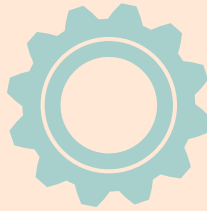
Come up with as many creative ideas you can think of!

A large, empty rectangular box with a black border, intended for writing creative ideas. The box is centered on the page and occupies most of the space below the introductory text.



STEP 4

# PROTOTYPE



20mins

## Rapid prototyping

- gets students in the mindset of "doing" rather than thinking
- is short and quick so that students don't get attached to their ideas and are open to feedback and improvement

## Instructions for the students:

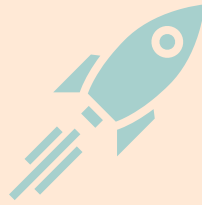
- Discuss and agree on 1 idea to work on.
- You have 20mins to use the upcycled materials to create a prototype of your design.

## *Facilitative questions...*

- What materials are you using to build?
- What will this structure be made of?
- Where will visitors view the animal from?
- How would your animal use this exhibit?

## STEP 5

# TEST



20mins

### Testing

- is the chance to refine the solutions and make them better.

### Instructions:

- Each group has 2 minutes to share about your design.
- Teachers to video record students' sharing.
- Upload each group's presentation onto Padlet for Zoo Educators to give comments.

QR code to padlet

### *Facilitative questions...*

- What were some challenges you faced?
- Why did you choose to use this material?
- Which area of your design do you think you can further work on?



# RESOURCES

## Malayan Tiger

1. **Basic information:** <https://www.mandai.com/en/singapore-zoo/animals-and-zones/malayan-tiger.html>
2. **Arhaa & Sali:** <https://fb.watch/j1sK2-dAZu/>
3. **Enrichment:** Malayan Tiger Enrichment Videos
4. **Conservation Champions – Saving Tigers (includes caring for tigers):** <https://www.youtube.com/watch?v=1rZBX13Q7O8>

## Orangutan

1. **Basic information:** <https://www.mandai.com/en/singapore-zoo/animals-and-zones/orangutan.html>
2. **Caring for orangutans:** <https://www.youtube.com/watch?v=LHpownVI3Q>
3. **Conservation Champions – Saving Orangutans (includes caring for orangutans):** <https://youtu.be/-IG0e0l2q1g>
4. **Social behaviour:** <https://fb.watch/j1spWHzg3A/>
5. **Lifestyle:** <https://www.facebook.com/photo/?fbid=444726091031492&set=a.207995641371206>
6. **Raising young ones:** <https://www.facebook.com/photo/?fbid=374466121390823&set=a.207995641371206>

SINGAPORE ZOO

# RESOURCES

## Kangaroos

1. **About the Australasia exhibit:**  
<https://www.mandai.com/en/singapore-zoo/animals-and-zones/australasia.html>
2. **Basic information on Eastern grey kangaroos:**  
<https://www.mandai.com/en/singapore-zoo/animals-and-zones/eastern-grey-kangaroo.html>
3. **Basic information on tree kangaroos:**  
<https://www.mandai.com/en/singapore-zoo/animals-and-zones/tree-kangaroo.html>
4. **Caring for the new tree kangaroo joey:**  
<https://www.facebook.com/watch/?v=1234117026931258>
5. **Enrichment:** <https://www.facebook.com/watch/?v=10154108533842051>
6. **Tree kangaroos' adaptations to their special lifestyle:**  
[https://fb.watch/j1v\\_cliYaf/](https://fb.watch/j1v_cliYaf/)



# RESOURCES

## Manatee

1. **Basic information:** <https://www.mandai.com/en/river-wonders/animals-and-zones/manatee.html>
2. **Diet:** <https://fb.watch/j1wobwgHRw/>
3. **Get to know the manatees at River Wonders:**  
<https://www.facebook.com/watch/?v=268868551107535>
4. **Keeping Up with the Keepers (caring for manatees):**  
<https://www.facebook.com/MandaiWildlifeReserve/videos/280555102782602/>
5. **Medical conditioning:** <https://www.facebook.com/watch/?v=10153518081487051>
6. **Vision:** <https://youtube.com/shorts/M4rQ9cj-bYU?feature=share>
7. **Adaptations for diet:** <https://www.facebook.com/photo/?fbid=403975248439910&set=a.207995641371206>

## Giant River Otter

1. **Basic information:** <https://www.mandai.com/en/river-wonders/animals-and-zones/giant-river-otter.html>
2. **Adaptations for an aquatic lifestyle:**  
<https://www.facebook.com/watch/?v=2914461768789194>



# RESOURCES

## Giant Panda

1. **Basic information:** <https://www.mandai.com/en/river-wonders/animals-and-zones/giant-panda.html>
2. **Caring for giant pandas:** <https://www.youtube.com/playlist?list=PLml5yDzYBpaQZmdEcnNG5yMG0k8VaPGT>
3. **All about Lele:** <https://www.youtube.com/playlist?list=PLml5yDzYBpbEgnpR50QkOWhrurv3xrwQ>
4. **Solitary lifestyle:** <https://fb.watch/j1wcjioiL2/>
5. **Diet:** <https://www.youtube.com/watch?v=sGI-JAkjBcM>
6. **Medical conditioning:** <https://fb.watch/j1s2M9iRO5/>
7. **Target training:** <https://fb.watch/j1tMsAgneS/>
8. **Enrichment:** <https://fb.watch/j1sRQa0t3u/>