



Elementary School



DESIGN PACKET

Educational Product

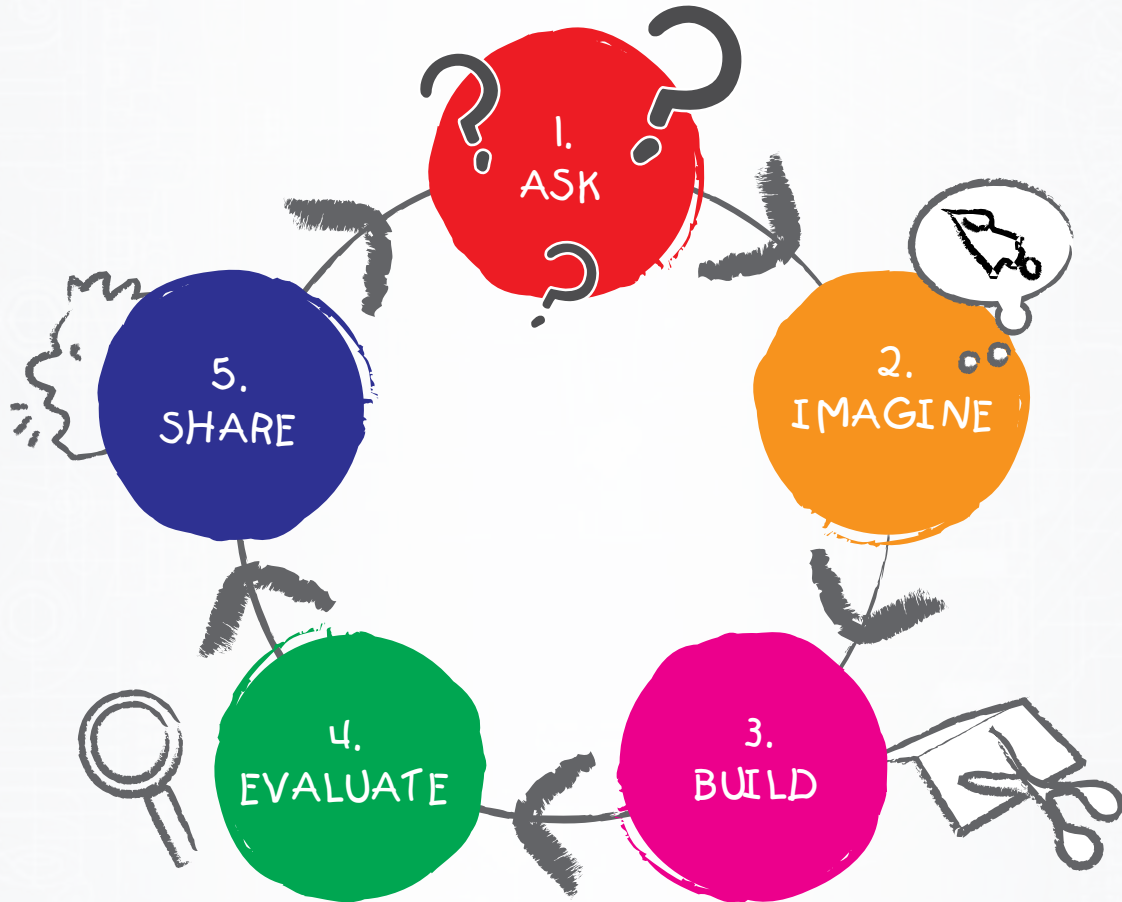
Educators & Students

Grades K-5

NP-2009-12-228-LaRC

NASA Our World (Grades K-5)

www.nasa.gov/education/nasaclips



Steps of the Design Process

1. ASK

- What is the problem?
- What have others done?
- What are the limits?

2. IMAGINE

- What are some solutions?
- Brainstorm ideas.
- Choose the best one.

3. BUILD

- Draw a diagram.
- Make lists of materials you will need.
- Follow your plan and build it.

4. EVALUATE

- Test it out!
- Record your results.
- Make changes to improve it.

5. SHARE

- Explain your ideas to others.

Step 1: Ask



A. What is the problem?

B. What have others done to solve this problem?

C. What are the limits? These may include such things as cost or time.

Step 2: Imagine



A. What are some solutions? Brainstorm ideas and list them.

B. Choose the best idea and explain why you think it is the best.

C. Brainstorm ideas for each part of the design chosen by your team. Be sure everyone can explain the choices.

Step 3: Build



- A. Draw a diagram of your design.
On the drawing, label all parts clearly.
- B. Make a list of the materials you will need.
Describe why you have chosen these materials.
- C. Follow your plan and build the model.
- D. How did your drawing help you build your model?
How would your drawings and notes help others?
- E. If there are any differences between your drawing and your model,
explain why you made these changes.

Step 5: Share



A. Explain your ideas to others. You might:

- make a poster.
- give a speech.
- make a short video.
- make a video collage.
- write a letter to NASA convincing them to build your model.

Be sure to include sketches, pictures, data and graphs in your presentation.

B. Tell what each member of the team did for this project.

EXTEND (Optional):

A. Compare your design to others. How are the designs different?

Is there some part of another design you would like to add to your design?

B. How could you test which model is best?

Decide on a test and try it out.

Design Challenge Evaluation Rubric

Elementary School Design Packet

Group Members: _____

Rubric Category	Score
Ask <ul style="list-style-type: none">• The problem is clearly explained.• The work others have done to solve the problem is listed.• At least two limits are listed and explained.	
Imagine <ul style="list-style-type: none">• Two or three ideas for solutions are listed.• One idea is chosen by the team and reasons for the choice are included.• Each part of the design can be explained and defended by the team.	
Build <ul style="list-style-type: none">• A diagram of the model is made before the model is built.• The model is built based on the original design.• Reasons for design changes are given.• The materials list includes everything that will be needed to build the model.• Reasons for material choices are given.	
Evaluate <ul style="list-style-type: none">• All questions in the student handout are completed.• Answers are correct and make sense.• The model is tested.• Results of the test are recorded neatly and accurately.	
Share <ul style="list-style-type: none">• The presentation is well-organized.• Presentation includes sketches, pictures, data or graphs.• The work on the project is shared equally by members of the team.• Each member of the team contributes ideas and suggestions.	
TOTAL (out of 20 pts possible)	

4 (Excellent) = All directions (questions, steps and details) are met or followed.

3 (Good) = Most directions are met with only a few mistakes.

2 (Fair) = Many directions are not met and/or there are many mistakes.

1 (Poor) = Most directions are not met and there is missing information.

0 (No effort) = No effort to meet directions.