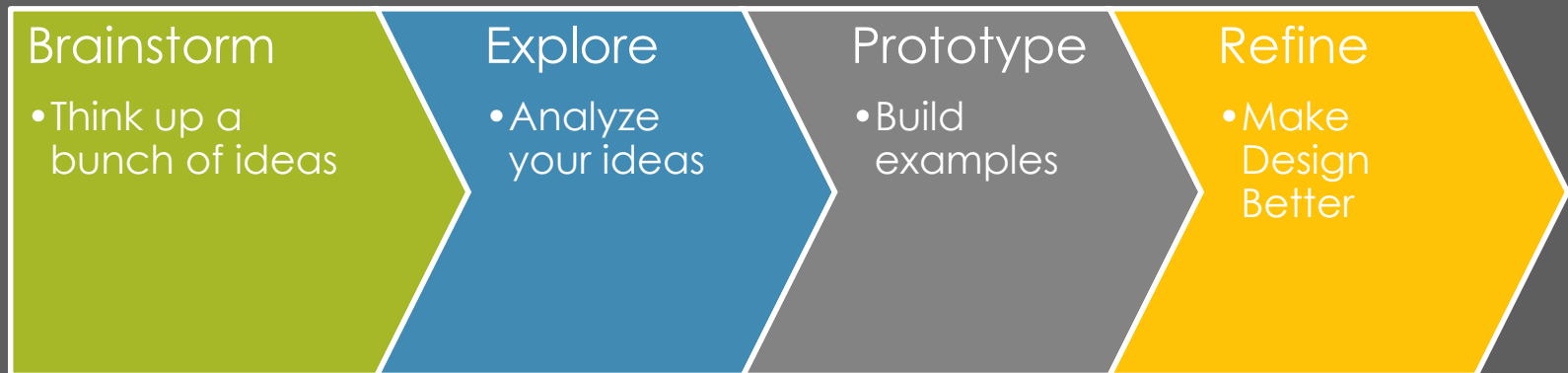


Glider Challenge

Lesson 1.5.1

The Engineering Process



The Engineering Process

Brainstorm

- Think up a bunch of ideas

- Get as many ideas out as you can
- Don't worry about if they are good or bad ideas
- Have fun

The Engineering Process

Explore

- Analyze your ideas

- Look at the criteria again
- Review your brainstorming designs
- Pick the **3** you think will work the best
- Add more details (like measurements) to designs you picked to refine them

The Engineering Process

Prototype

- Build examples

- Build examples of **2** your designs
- Test the examples

The Engineering Process

Refine

- Make Design Better

- Pick the design that best meets the criteria
- Make modifications
- Build the final design

Glider Challenge



- Design an Experimental Small Glider to win one of the events
- You can fly your glider in all three

Experimental Glider Criteria

- Flown by XG Pilots Only
- Plans: Scale drawings of the airplane top and side view provided
- Dimensions: No dimension larger than 260 mm
- Accuracy: All Dimensions are $\pm 3\text{mm}$ to Plan
- Center of Gravity: Calculated mathematically and Marked on plane
- Balance: Plane balanced around CG
- Trimmed: Airplane will fly straight when released

Brainstorm – Part 1

- In the brainstorming page of your workbook, come up with as many different airplanes designs as you can
- They should be different from the BA designs (you can start with a BA design, then modify it though)
- They can be simple or crazy
- There are no bad ideas

Brainstorm – Part 2

- Compare your designs with your partner designs
- Talk about how the different planes might fly