

# Optics Inventions

Let's get working!

# Building Optical Devices

Camera

Telescope

Projector

Microscope

Many more!

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# The planning process

**Start with  
an idea**

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**Research  
your idea**

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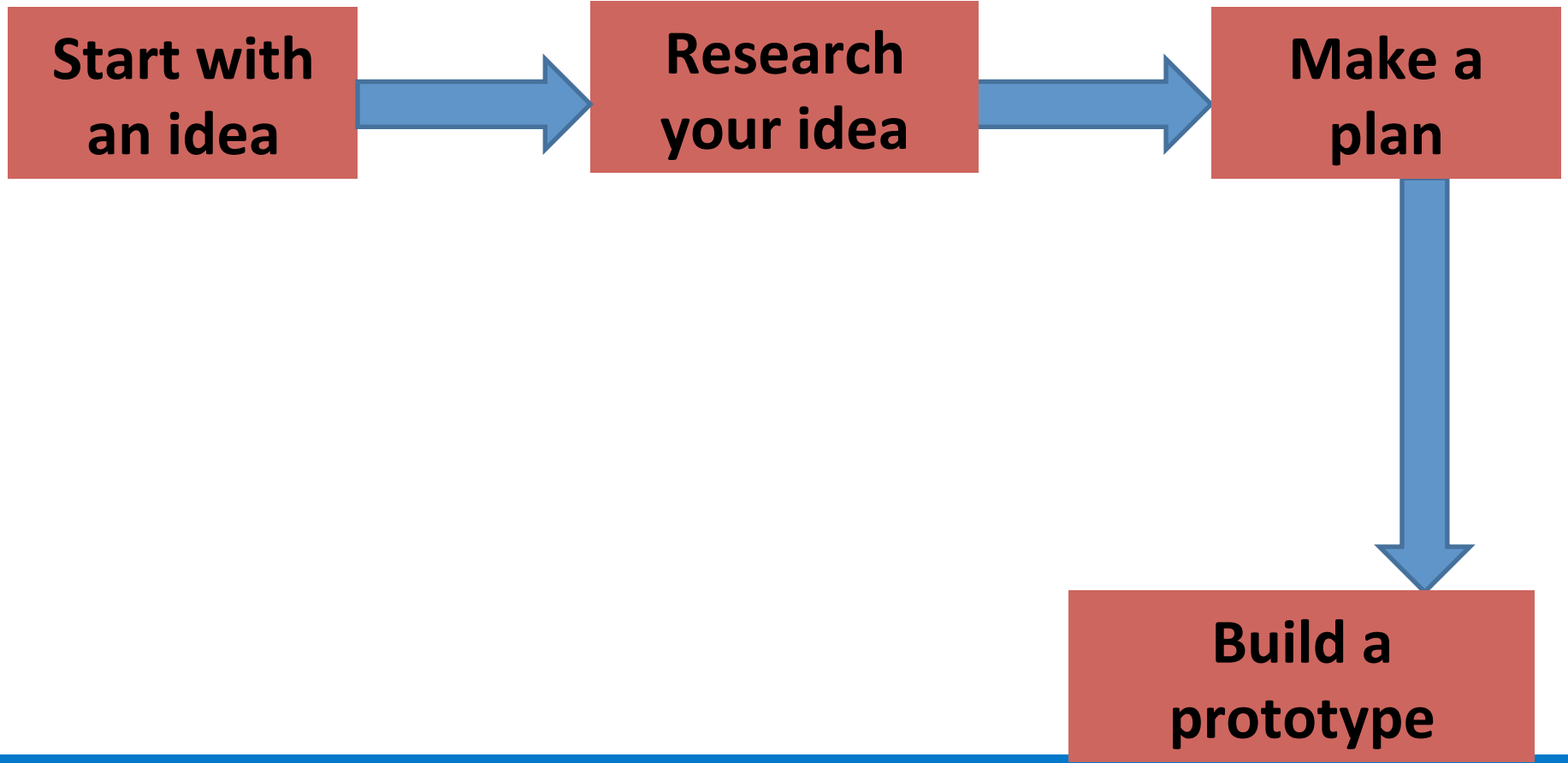


**Research  
your idea**

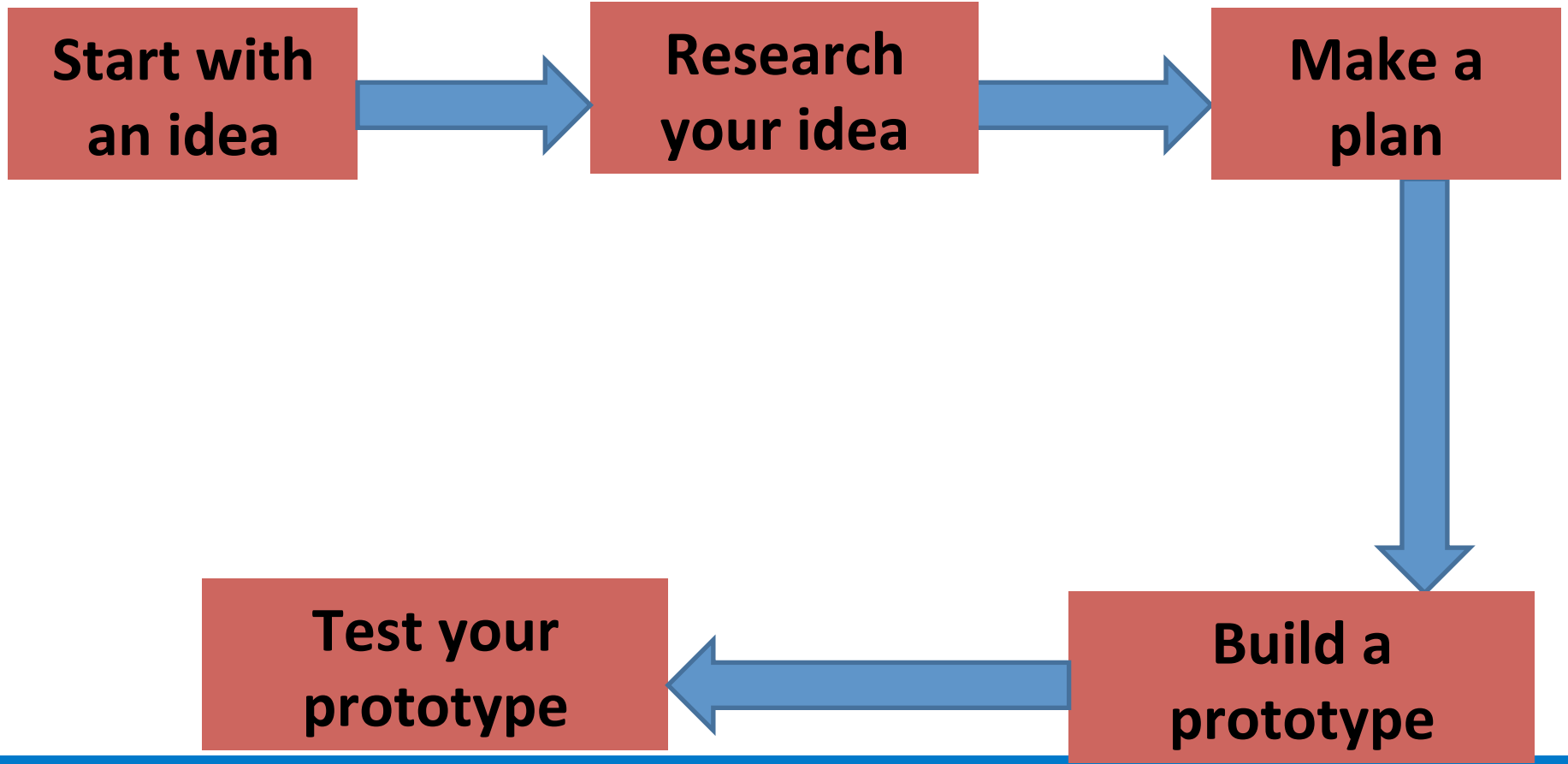


**Make a  
plan**

# The planning process

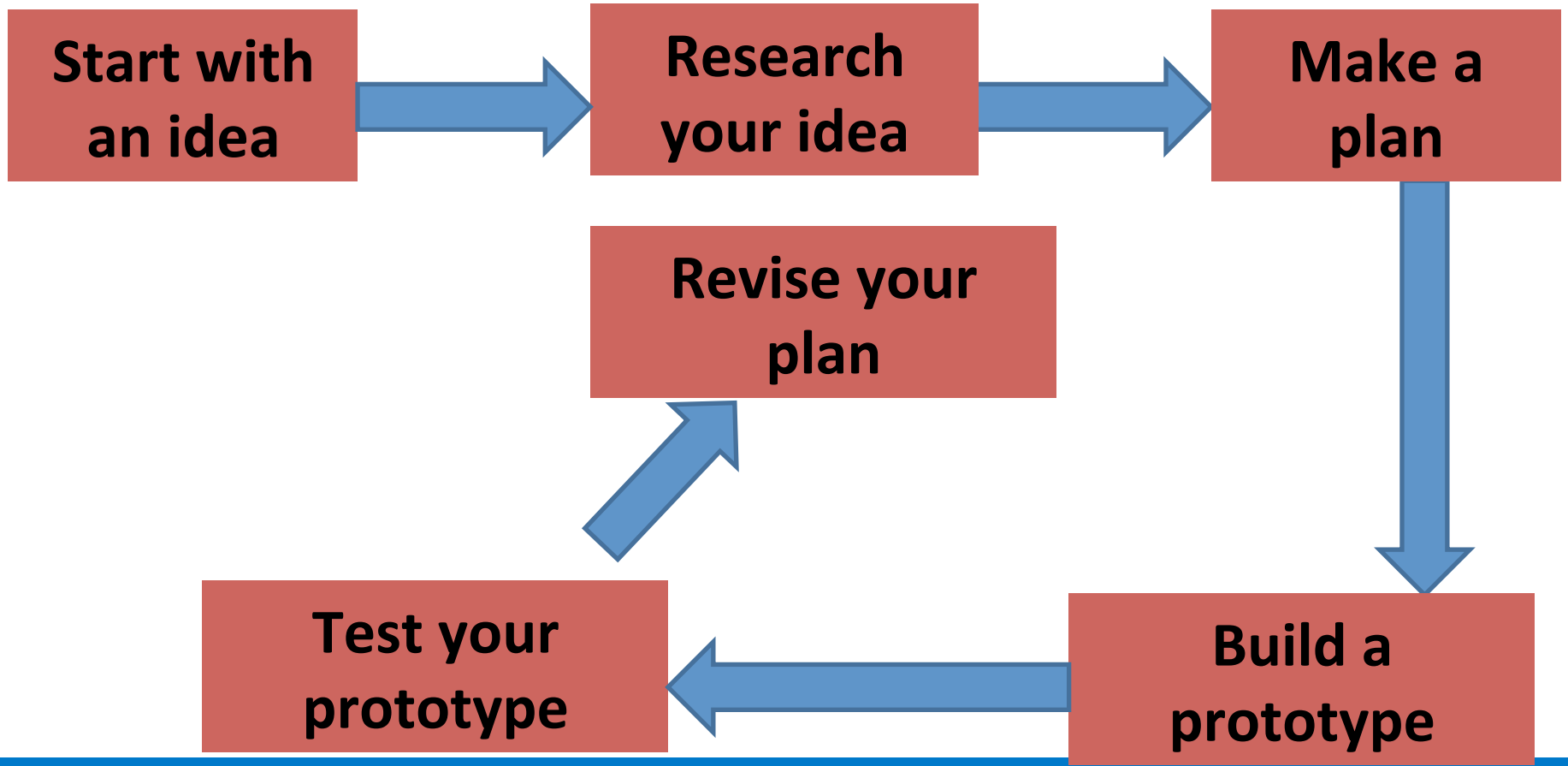


# The planning process

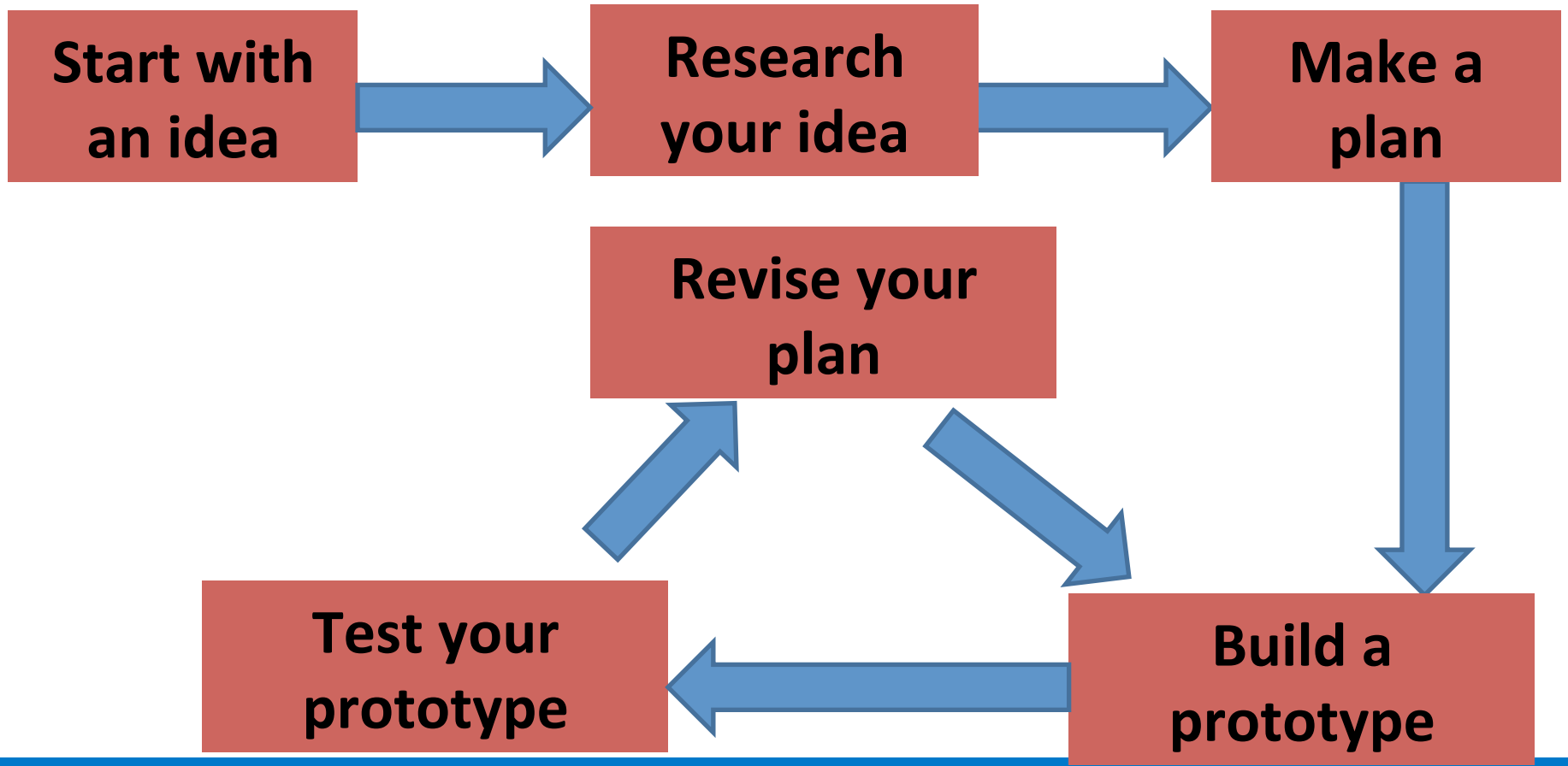




# The planning process



# The planning process



# Materials

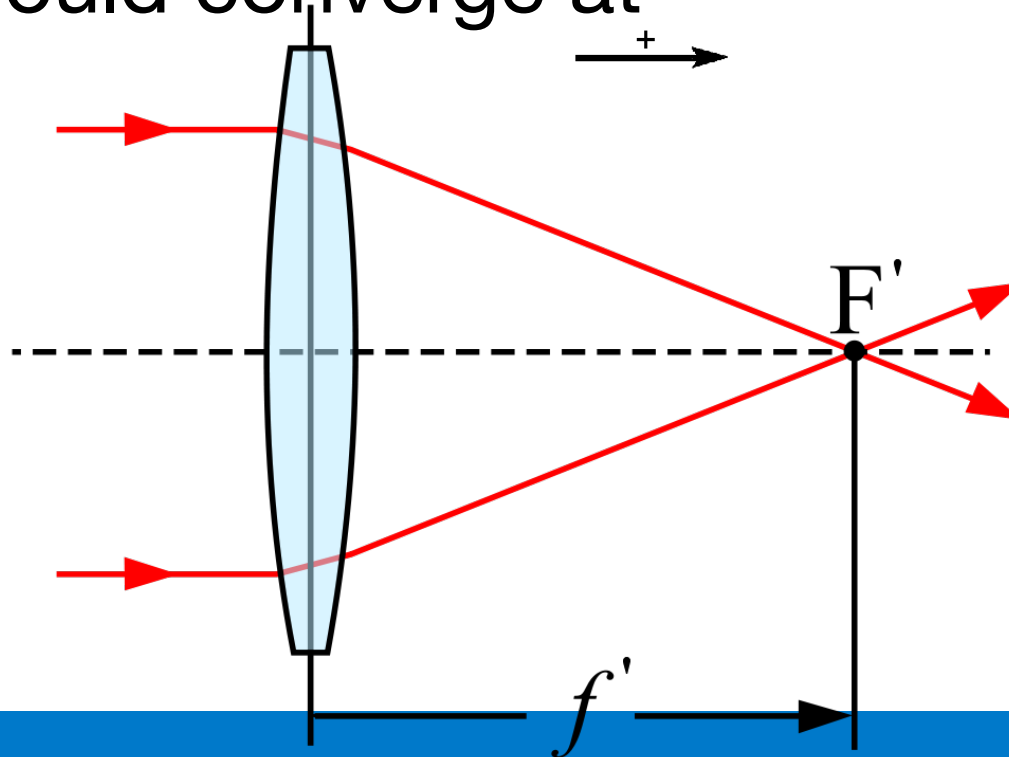
- Lens



- Cardboard box
- Cell phone

# Focal Length

- The distance from a lens that parallel light rays would converge at



# How to get focal length

- Use your lens and a very far away light (or the sun) to create the smallest possible point of light. Measure the distance between lens and point of light.



Photo by lesson author, Matt Roy

# Cell Phone Projectors

- Search for 'How to make a cell phone projector'
- You may use any websites or videos that you find