Grade 1: Wearable Circuits Design Journal

Name: _____
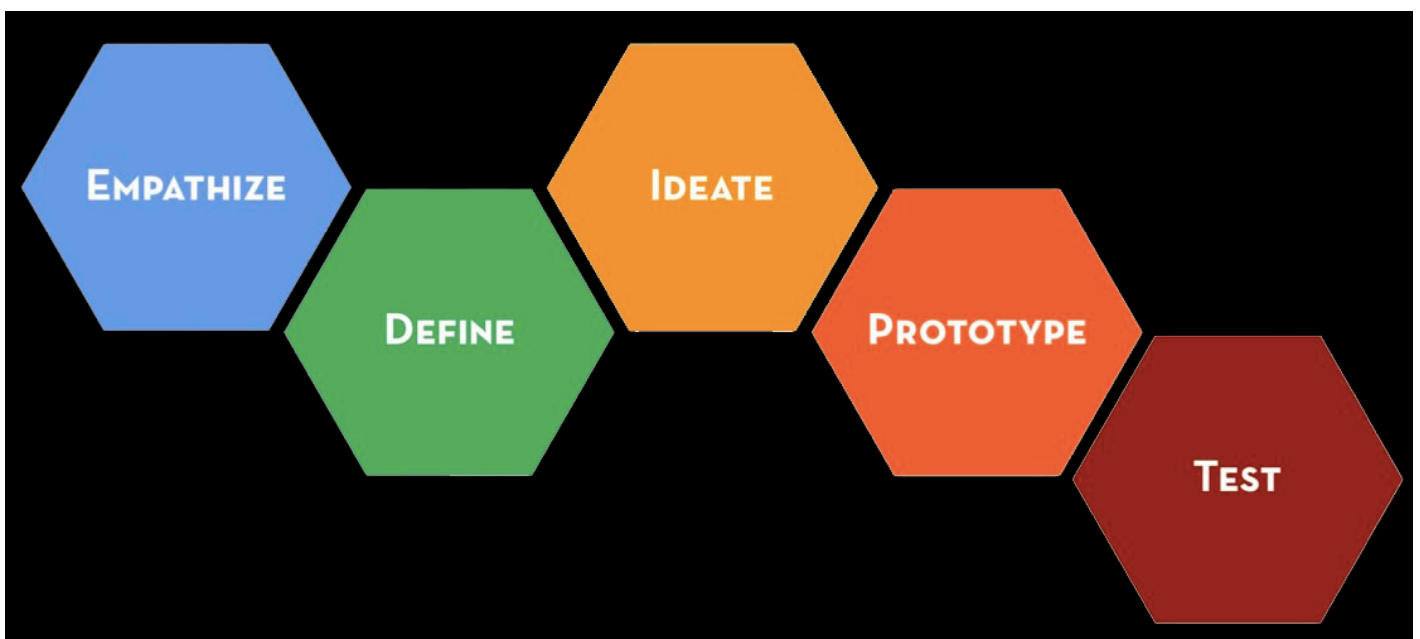

Pioneer Maker Space Pilot study
November 23, 2015 - December 3, 2015.

You as a designer!

WHAT IS DESIGN THINKING?

DESIGN THINKING PROCESS:
Taken from: https://dschool.stanford.edu

Empathize and define the need

Read the story together: **LINDIWE's busy life**

Lindiwe is a mother of three small children. She lives in Sowetho with her husband Katlego and their family . Lindiwe works very hard all day as a nurse at Baragwanth Hospital. After fetching her children from school at 5 o'clock in the afternoon, she returns home with many things to do - she helps her children with homework and then makes dinner, loads the dishwasher and sometimes the washing machine. After watching the news on television with a cup of tea, she phones her mother to find out how she is doing. After all the children have showered, Lindiwe likes to read a bedtime story to her children on before they went to bed. Her husband arrives home very late at night as he is a doctor at the same hospital. She then reheats his dinner in the microwave. She uses a lot of electricity from the time she gets home until she goes to bed.

One Thursday night when Lindiwe and her children had been home for an hour, the electricity went out. Lindiwe was helping her youngest daughter with her research project on "The lifecycle of frogs". They had just found a great article from Google on her computer, but the screen went black and so did the rest of their house. Lindiwe was very irritated that the lights went out, as she had many things she still needed to do that evening. The worst problem was that she felt angry because she had not bought new batteries for the torch and she remembered that the candle they had could not be lit as she couldn't remember where the matches were. She was not in a good mood - being stuck in the dark disturbed her plans and madeit very challenging to try complete all her tasks in the dark.

WHAT DO OUR USERS FEEL?

EMPATHIZE

EMPATHIZE

Draw your user's face showing his/her emotions

WHAT IS OUR PROBLEM?

DEFINE

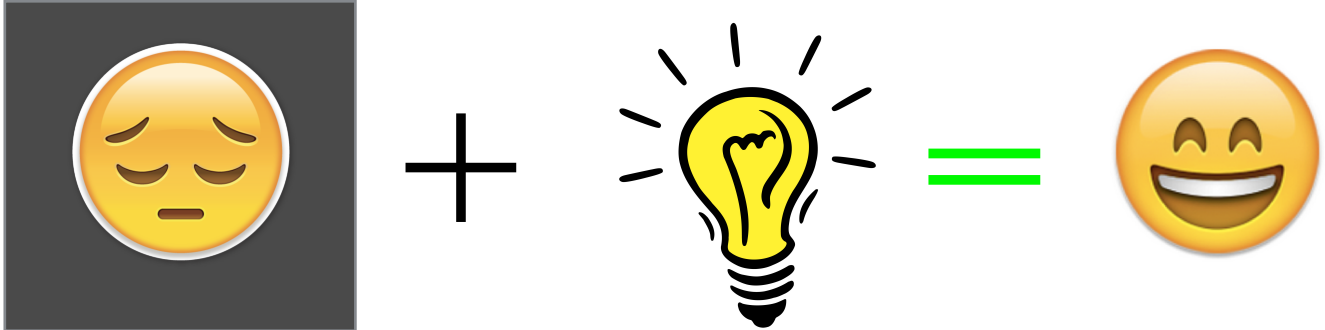### DEFINE THE NEED

Design a way for _____ to better _____ .

(specific group of people)   (situation)

PERFORMANCE TASK AND RUBRIC

As Pioneer designers, what product can we create that will help people overcome this emotion when the lights go off?

In pairs, you will create a product that lights up. Here is the rubric:

| Criteria	Criteria met
and switch	- Circuit has an LED that lights up - Circuit has working switch
	- Product can be worn - Product is user-friendly - Product considers user's emotions.
Improve	- Students make two changes to make the product better.

Playing with Circuits and Ideate

HOW DOES A CIRCUIT WORK?

power source / battery	positive terminal	negative terminal
load / LED	connector	current

Label the circuit below:

1._____
2._____
3._____
4._____
5._____
6._____
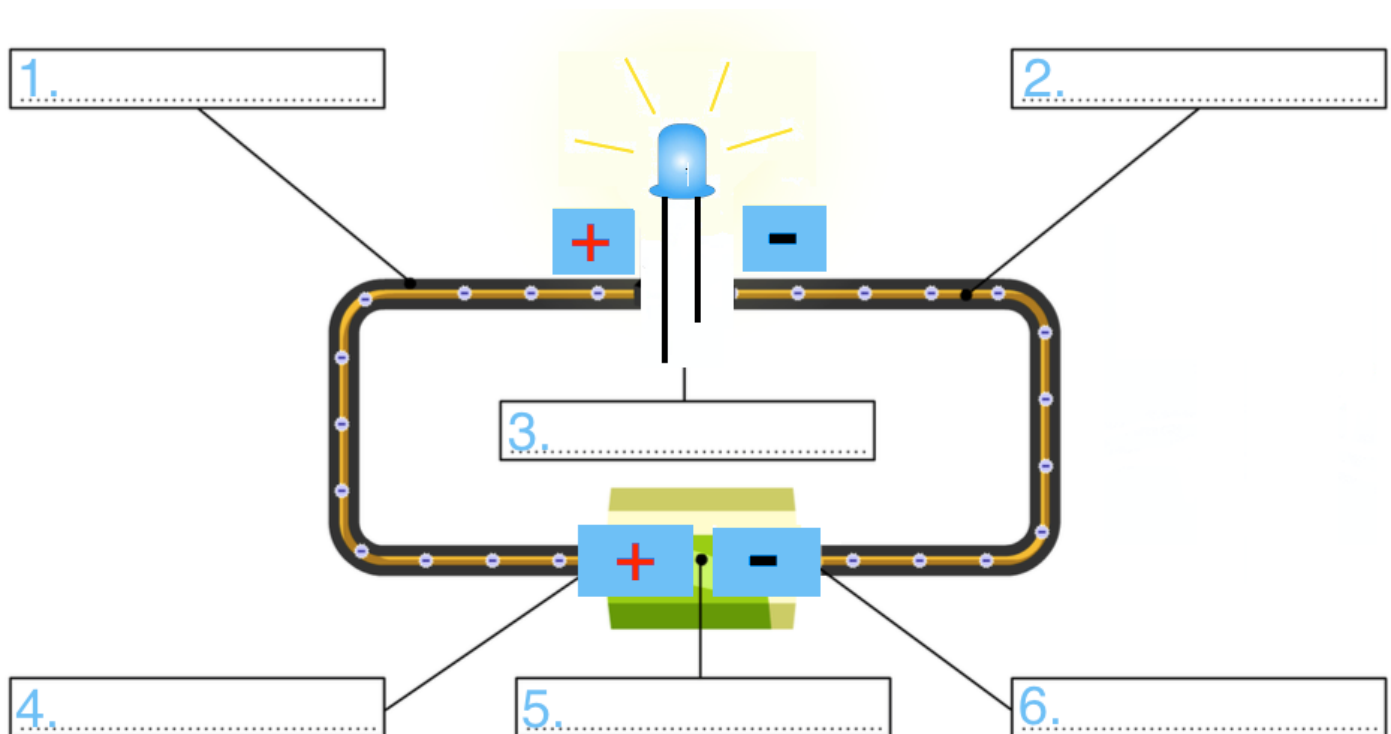
Watch video about electric circuits: https://www.brainpop.com/science/energy/electriccircuits/

IDEATE

WHAT IDEAS DO WE HAVE?

IDEATE

Draw two ideas of wearable circuits for your user:

Idea 1:

Idea 2:

Switches and Prototype

HOW DOES A SWITCH TURN ON AND OFF?

Watch how switches work: http://tinyurl.com/no2k3ls

PROTOTYPE

What does prototype mean?

_____

START BUILDING

Start creating your wearable circuit

Each team will get:

- 2 LEDs

- 1 battery

- some copper tape

What other materials do you want?	How many/how much?

HOW DID I FIX A PROBLEM?

REFLECT:

What problem did you have?

How did you fix it?

Test and improve

TEST

USER TESTING

TEST

	Yes	Maybe	No
Does the LED work?			
Does the switch work?			
Can you wear this product?			
How can the designers make it better for their user?			

HOW CAN I IMPROVE MY PRODUCT?

What two ways can I make my product better?

Present your product

TELL US ABOUT IT

PRESENT

1. Tell us about your product.

2. What did you improve in your design?

Design Notes