



# Engineering for Sustainable Communities

الهندسة للمجتمعات المستدامة

[engineeriam.org](http://engineeriam.org)



MARSAL FAMILY  
SCHOOL OF EDUCATION  
UNIVERSITY OF MICHIGAN

FEB 12  
**Building  
Community**

FEB 13  
**Building  
Community**

FEB 14  
**Sustainable  
Community**

FEB 15  
**Electric  
Circuits**

FEB 16  
**Electric Art  
challenge**

FEB 19  
**No School**

FEB 20  
**Sustainable  
Community**

FEB 21  
**Electric  
Circuits**

FEB 22  
**Electric Art  
challenge**

FEB 23  
**Electric Art  
challenge**

FEB 26  
**Electric Art  
challenge**

FEB 27  
**No School**

FEB 28  
**Electric Art  
challenge**

FEB 29  
**Renewable  
Energy**

MAR 1  
**Project  
Designing**

MAR 4  
**Project  
Designing**

MAR 5  
**Project  
Designing**

MAR 6  
**Project  
Designing**

MAR 7  
**Assessment**

MAR 8  
**Showcase**

**Mar 11-15 Interview**

FEB

# Electric Art Challenge

تحدي الفن الكهربائي

# Create a present!

# تصميم هدية

## You need:

- LED LIGHT BULBS
- 3V BATTERIES
- COPPER TAPE
- CRAFTS SUPPLIES
- + Fasteners, paper clips, etc



## What will you make?

# ENGINEERING DESIGN CYCLE

# دورة التصميم الهندسي

How will you design the card to help our community?

**Technical/Social:** How will you balance the technical dimensions of your electric art card design with community needs?



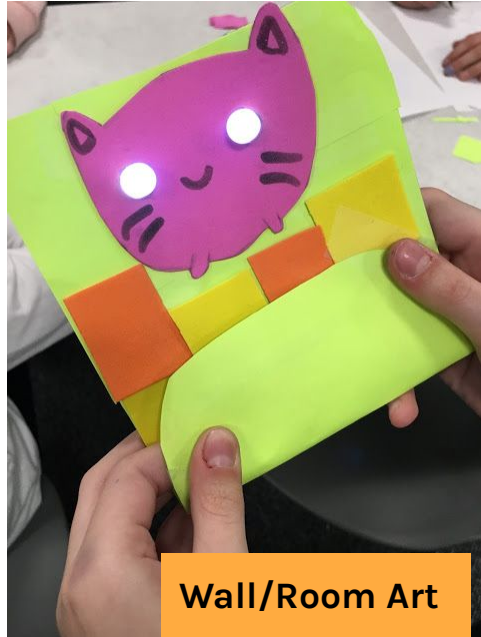
3D Paper Lantern



Light-up Origami



Poster W/Message



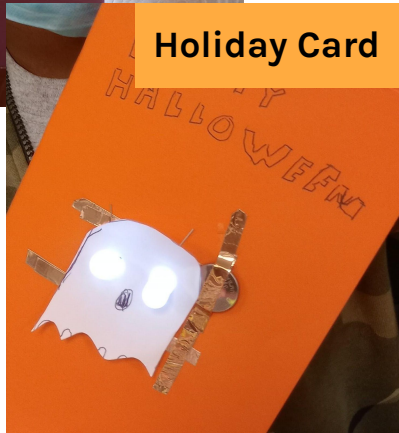
Wall/Room Art



Special Someone Card

This electric art's switch requires the user to press the button to complete the circuit.

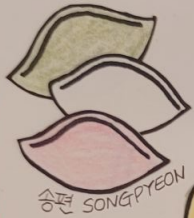
Holiday Card



# HAPPY LUNAR



## NEW YEAR



새해 福 많이 받으세요 2024

Hope everything goes well  
& may all your wishes come true in 2024.

# HAPPY LUNAR



## NEW YEAR



새해 福 많이 받으세요 2024



# Jinshil's planning process

## 1. Planning - تخطيط

1. What's the purpose/message of your e-Art card?  
How does this card promote a sustainable community?

*This card is about Korean Lunar New Year  
It promotes sustainable community because it gives happiness and joy.*

2. Who will receive your e-Art card?

*I want to send this card to my family and my friends.*

3. Which circuit are you going to design?

**simple circuit**  
(1 battery, 1 LED)

بسيطة

**series circuit**  
(2 batteries, 2 LEDs)

متسلسلة

**Parallel circuit**  
(1 battery, 2 LEDs)

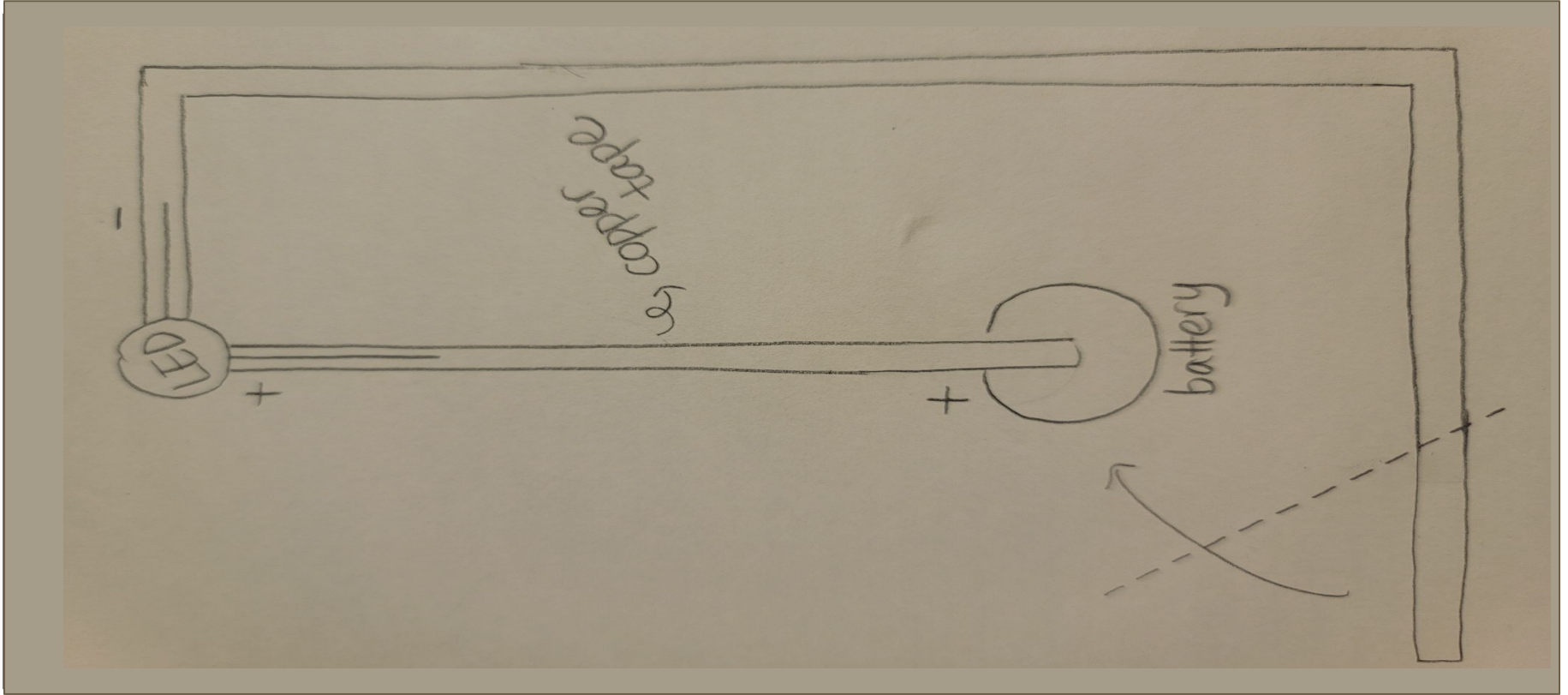
متوازية



## 2. Sketching

Draw and label your electric art circuit.

Label : Copper tape, LED light, battery, switch, current flow (use arrows)



# Start planning your e-Art design!

## 1. Planning - تخطيط

<p>1. What's the purpose/message of your e-Art card? How does this card promote a sustainable community?</p>	<p>This card is about ... It promotes a sustainable community because ...</p>
<p>2. Who will receive your e-Art card?</p>	<p>I want to send a card to</p>
<p>3. Which circuit are you going to design?</p>	<p><input type="checkbox"/> <b>simple circuit</b> (1 battery, 1 LED) بسيطة</p> <p><input type="checkbox"/> <b>series circuit</b> (2 batteries, 2 LEDs) متسلسلة</p> <p><input type="checkbox"/> <b>Parallel circuit</b> (1 battery, 2 LEDs) متوازية</p>

## 2. Sketching

Draw and label your electric art circuit.

- + Shape/design of your card
- + Your own circuit ( label it )

the copper tape, the battery,  
the light bulb(s) ,the switch

# Guidelines - ارشادات

- Must use copper tape
- Do not directly connect LED to the battery
- Must have an on/off switch
- Can use up to two LED lights & 1 battery
- *Have your teacher check your design in order to get your electric art materials.*

## Tips

- ★ Cut tape **with scissors** to avoid copper tape cuts
- ★ **Press hard** and **rub** the copper tape when it is over the light wires
- ★ The **longer** lead on the LED light is the (+) connection; the **shorter** lead is the (-) connection.

# SHOWCASE - عرض

1. Tell us what you made.

- which type of circuit did you choose?
- Is it labeled?

the copper tape    the battery    the light bulb(s)    the switch

1. How do you **feel** about it?

2. **Who** did you make the e-Art circuit card for, and why?

3. Which aspects of i-Engineering for **sustainable communities** does this address? (*Happy, Healthy, and/or Just*)

4. How do you see this **being used**?

5. What **problems** did you encounter and how did you solve them?