Kyndle Cardboard (Opaque Projector for E-reader)

by bing on August 12, 2016

Table of Contents

Intro: Kyndle Cardboard (Opaque Projector for E-reader)

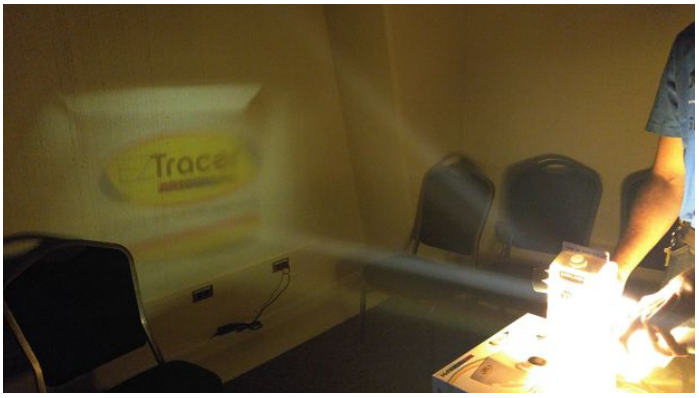
Consider this as inspired follow up to the Kinkajou® Microfilm Projector. Simple, low cost projector for education of third world. Also as nice DIY maker project for learning about optic, lens principles.

If you prefer an instant plug and play project, you just need to buy two items.

Ez Tracer Projector $29.99

Kindle E-reader $69.99

But read on if you want to take more advantageous route.



Step 1: Parts and Tools

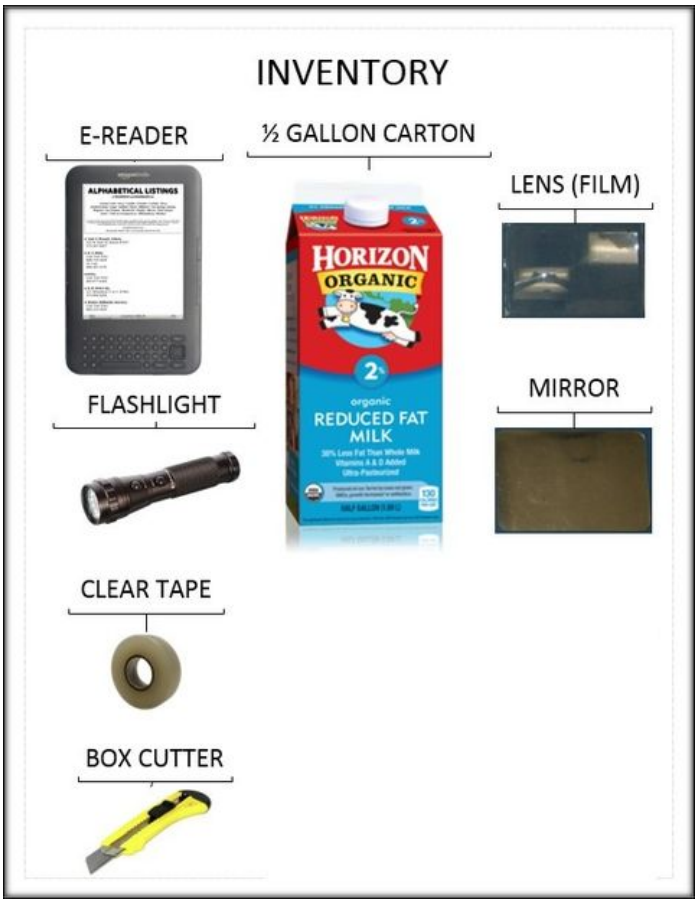
Parts Needed

1. (2) 1/2 gallon Milk Cartons (Please pick them up from your recycling bin, clean them before use)
2. Fresnel Lens
3. 4X6 Plastic Mirror

I had savaged the lens body from a Smart Phone Projector

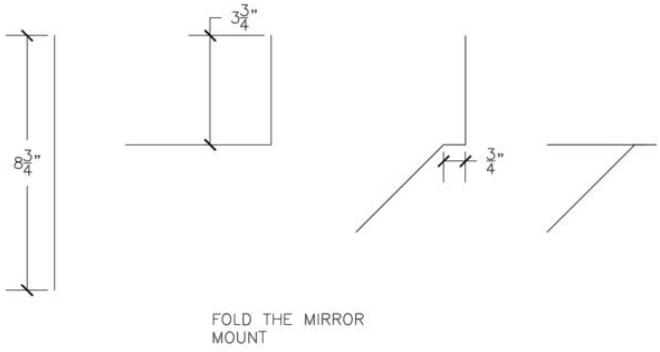
Tools

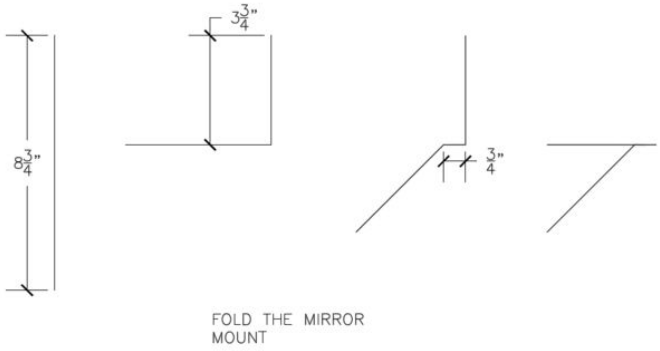
- Utility Knife
- Scissor
- Tape



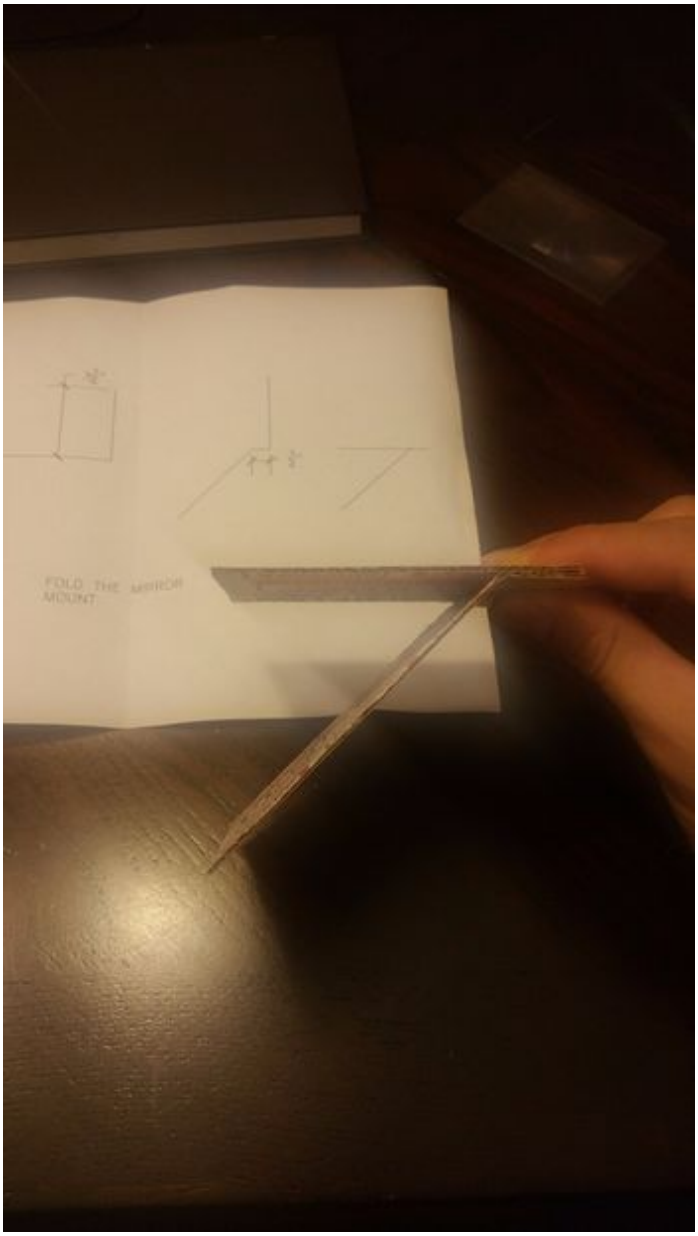
Step 2: Mirror Mount

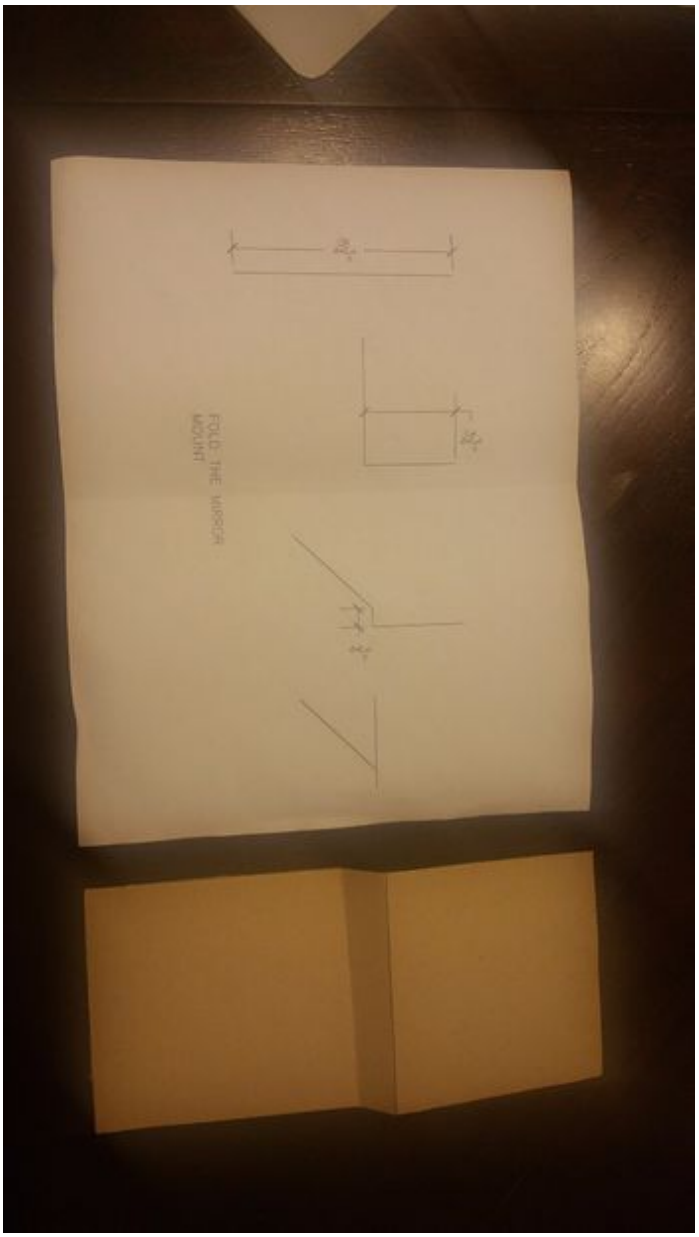
1. Cut the 4x6 Plastic Mirror in half with Scissor.
2. Remove the protective film on top of the mirror
3. Find a cardboard same width as the milk carton. Fold it as the mirror mount
4. Use double side tape to mount the mirror on the mirror mount





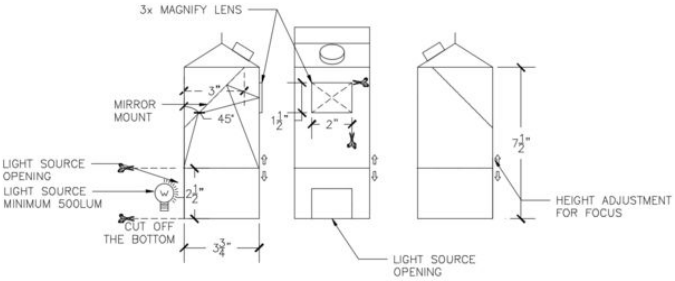
FOLD THE MIRROR
MOUNT

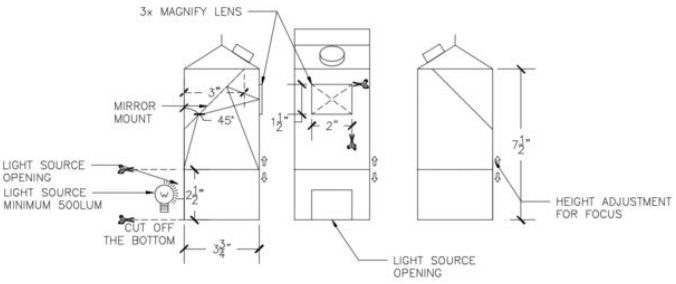




Step 3: Projector Body

1. Cut off the bottom of the milk carton
2. Cut the lens opening on the milk carton
3. Cut Light Source opening on the opposite side of milk carton (Size to fit your light source, larger if you want to use light bulb, smaller if you want to use flash light)
4. Slip in the mirror mount into the milk carton
5. Adjust the mirror so it is 45 degree
6. Attach the Fresnel Lens
7. Cut the milk carton at the 2½" Line (Because the lens is fixed, we have to move projector body up and down to adjust focus)




3x MAGNIFY LENS
MIRROR MOUNT
3"
45°
1½"
2"
7½"
LIGHT SOURCE OPENING
LIGHT SOURCE MINIMUM 500LUM
2½"
CUT OFF THE BOTTOM
3¾"
HEIGHT ADJUSTMENT FOR FOCUS
LIGHT SOURCE OPENING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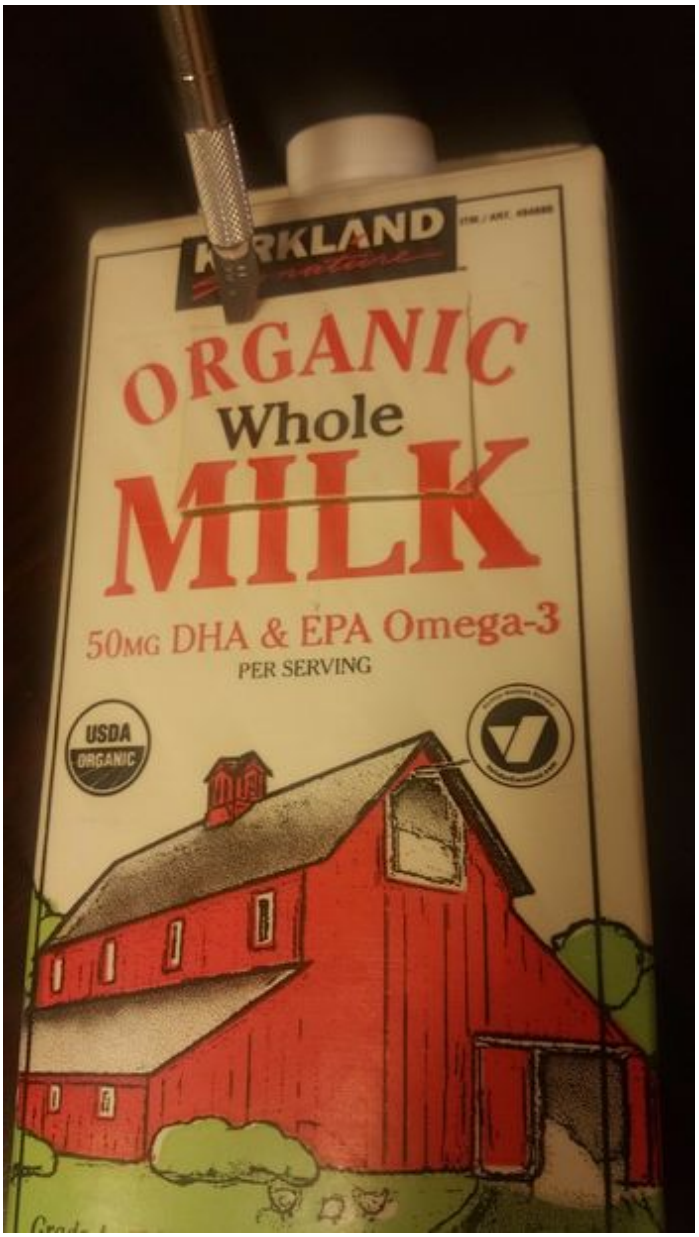
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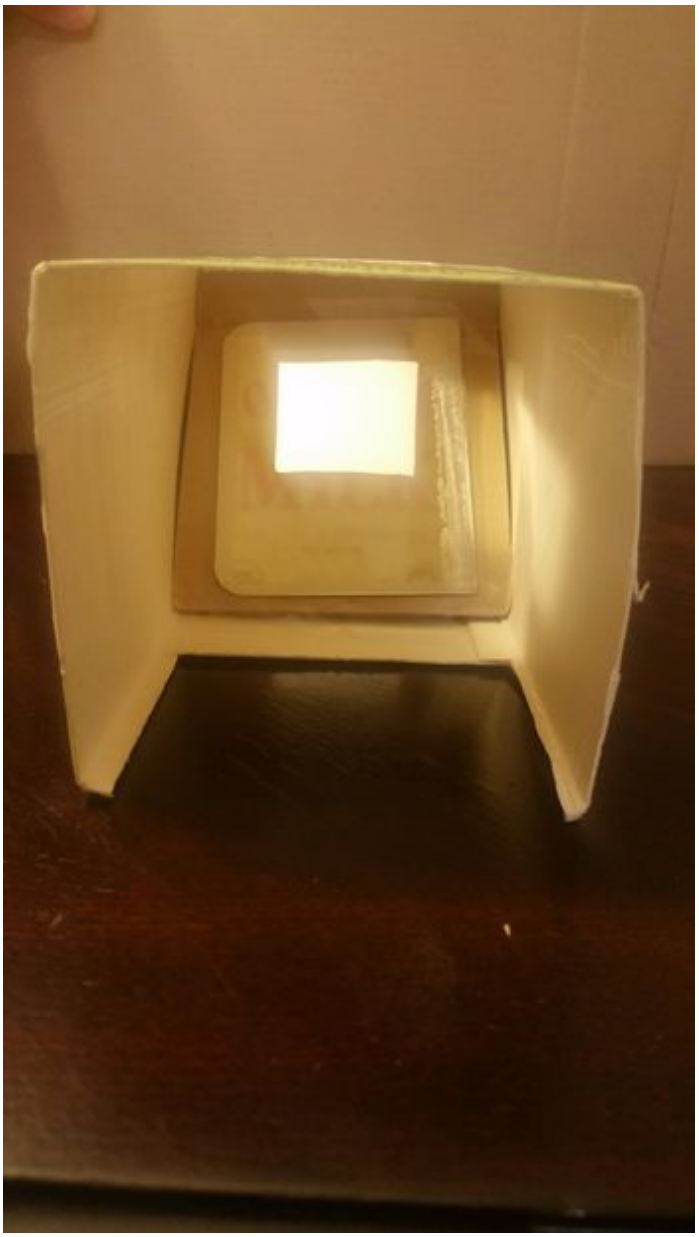
HALF GALLON (1.89 L)

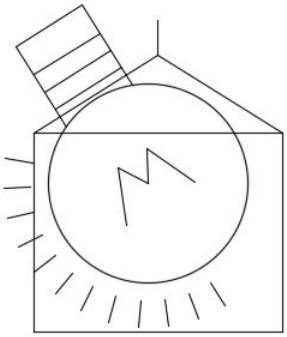


Step 4: Light Box

1. Cut a milk carton in half
2. Remove the Plastic mouth piece.
3. Insert 100 watt Light bulb (LED only, Anything else is a fire hazard.)

Optional

Use a high power LED Flashlight to make it a wireless Projector.

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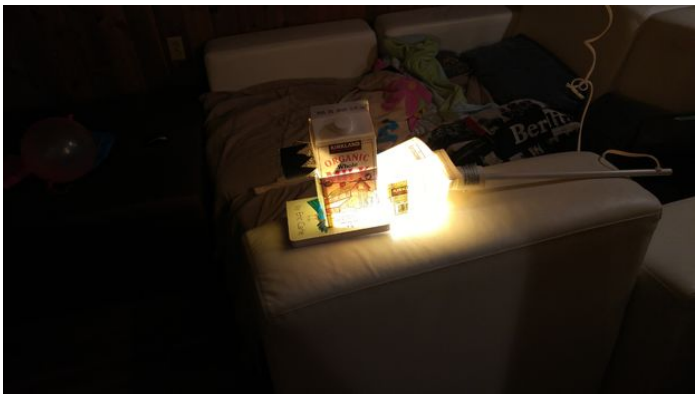
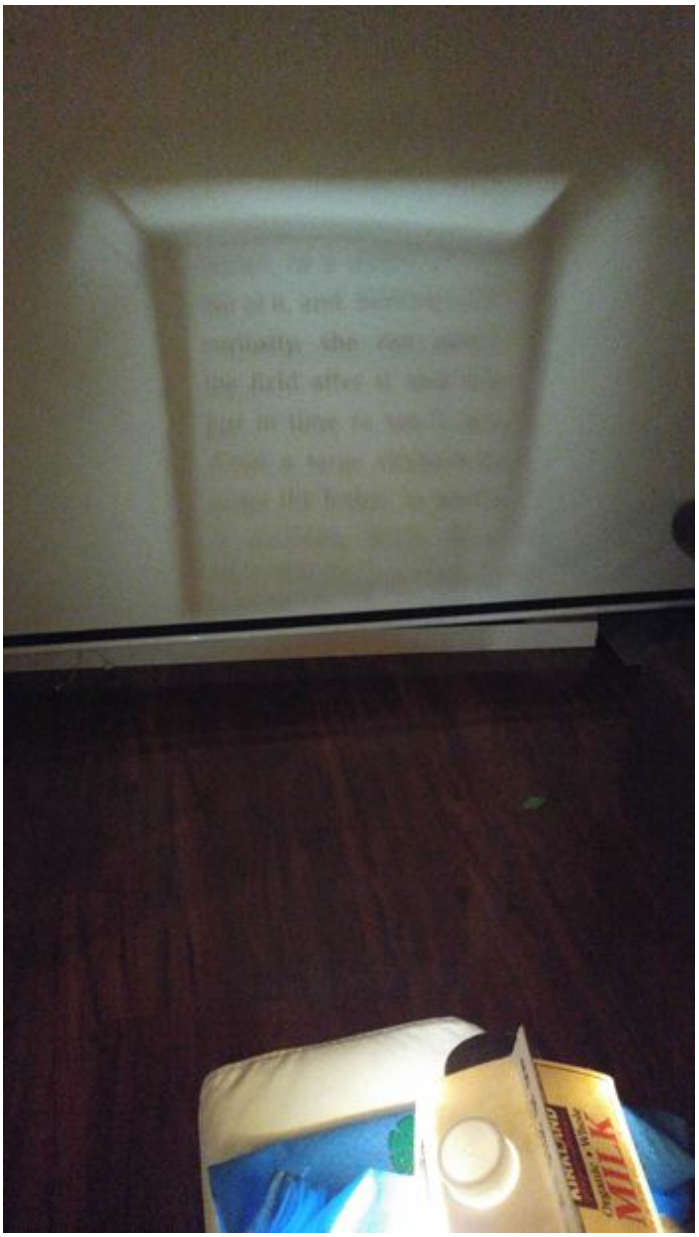
Step 5: Assemble

1. Use a rubber band to tie cut off milk carton bottom to the projector body. This is your focus slider.
2. Attach the light box to the projector
3. You are ready to start your projector



Step 6: Projecting an E-reader display

The opaque project will project any paper, book you place under the projector to the screen in front. You just need to find a good focus spot. For our design, 3 foot to 5 foot is the optimum range between projector and the screen. Move the projector back and forth to find the good spot. Because the lens will magnify all the minor mis-alignment and wrap in the build, perfect focus is very hard to accomplish.



Step 7: Learn More

Read the attached pdf for more about Opaque Projector. Maybe load it into your E-reader and present it in the class using your DIY projector to complete the cycle.

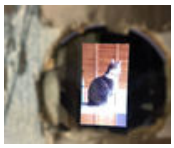
File Downloads

OpaqueProjectors.pdf (1 MB)
[NOTE: When saving, if you see .tmp as the file ext, rename it to 'OpaqueProjectors.pdf']

Related Instructables

Adaptive Phone Projector by knexpert1700

DIY iPod Video Projector - Requires no Power or Disassembly of the iPod by Sytner



DIY Smartphone Projector by isaacrlee

Utah State University - Overhead Projector Controls by SilverVeridian

Easy Hogographic Projector by Saurav Chakraborty

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HAL9002 says:
Awesome!
Aug 18, 2016. 1:02 AM **REPLY**

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Great job!
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