
Personal Story or Meaningful Moment Quilt Square Project Guide



Overview and Description: The personal story quilt square project seeks to engage students in applying learned skills to design, build, and code integrated social studies projects for cross-curricular learning. This guide will help you teach your students how to do this for their own personal story. You will notice that this guide has lots of space for you to make notes; please personalize and tailor the project to the needs of your students and standards. During this project, students will be able to use the prior knowledge they gained during the timeline and freedom square projects to complete their personal story quilt square. When completed, their personal story square will use LED lights and a microprocessor to highlight key points in the showcasing of the story, migration pattern, or history they choose from their life. The steps listed are to act as a guide for you; timing may vary for your students.



Objectives

Students will:

- Learn how to use and build a sewn computational parallel circuit
- Learn the science behind parallel circuits
- Apply basic programming principles
- Learn how to use a microprocessor
- Learn how to create a visual representation of a story or event
- Relate their social studies learning to the content represented by their quilt square

 Preparation	 Supplies per Group
<ul style="list-style-type: none"> ● Allow makecode.com on class computers. ● Prepare supplies for each student as needed. ● Reserve the computer lab if needed. ● Copy student worksheets and guide (1 per student). ● Arrange common class materials (decorative felt, glue guns, scissors) 	<ul style="list-style-type: none"> ● 1 Personal Story Kit (felt and components) ● Circuit Playground Express ● Mini USB cable ● Two Alligator Clips ● Coin Cell Battery ● 1 Large felt square ● A needle

NOTES:

Days 1&2 – Circuit



Essential Questions

- Has your family always lived here? Did you move around?
- What are some of your favorite things to do with your family?
- What memories do you have with your family?



Step 1: Select a Personal Story or Meaningful Moment and Make an Artistic Drawing



The first step of this project is to choose a personal story or meaningful moment that you want to represent on your quilt square. Once you have selected a personal story you want to represent on your quilt square, draw a picture that represents the story on page 5. This is the picture you will put on your quilt square. Your project will also have three programmable LED's that will add light to your project. Choose where you want to place the LEDs in your image. Remember, these LEDs can be placed anywhere on your square.

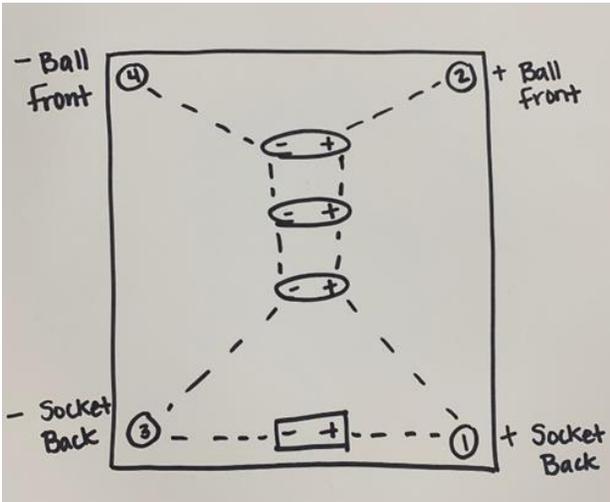
For example, this quilt square shows a path from Montana to Utah and represents that the person moved back and forth between Montana and Utah. LEDs will be placed under each heart and the small car.

Artistic Design Drawing



Step 2: Draw your circuit schematic of your quilt square

Once you have made an artistic drawing for your quilt square, it is time to draw the circuit schematic for your quilt square. This step is important in helping you sew all the parts of your quilt square correctly. This circuit schematic needs to be accurate enough to identify each component and connection. While drawing your circuit schematic all of the components may be drawn on the same side, but **remember that your battery holder and bottom snaps will ultimately end up on the back of your quilt square**. Your four snaps need to go into the corners of the quilt square. Below is an example of a circuit schematic.



Note: A snap has two parts, *the ball*, which has a little, rounded knob sticking up. The top snaps will be the ball portion of the snap and will go on the front of the quilt square. The second part of the snap is called *the socket*, which is the flat part without a knob in the center. The bottom snaps will be the socket (flat) portion of the snap and will go on the back of the square.

Directions: Draw out both parts of your memorable moment quilt square design and *label all the parts*. Make the positive and negative lines different colors. *Check your schematic drawing with your teacher.*

Circuit Design Drawing (needs 3 LEDs, positive and negative lines, battery holder, and 4 snaps, one in each corner) Be sure to label the positives and the negatives



Check your schematic with your teacher before going on to Step 3.

Teacher Signature:



Step 3: Make a paper pattern

The next step is to use construction paper to make a pattern of your quilt design square at scale using construction paper. Cut out all the pieces you will need for your design and make sure you like how they look. Make any changes now and recut the needed pieces out of construction paper.



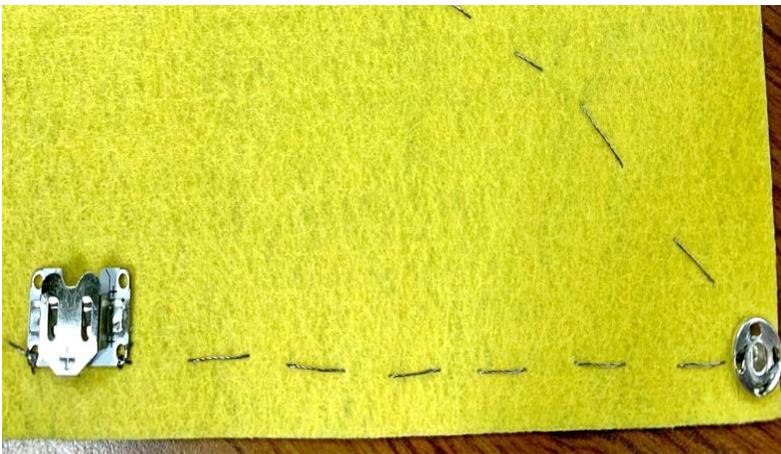
Step 4: Get ready to sew

The next step is to cut out your design materials. Use your paper pattern to cut out the felt pieces you need for your design. Arrange these pieces on your large felt square. **DO NOT SEW OR GLUE YOUR PIECES!** Once you are happy with the location of each piece and the location of your LEDs, *mark the location of your LEDs on the front of your large piece of felt using a marker or a small piece of masking tape.*



Step 5: Sew in the positive (+) line

After your circuit schematic is checked off, it is time to sew each circuit component onto your quilt square. Don't worry about your artistic drawing until all the sewing is finished. Tape the circuit components (battery holder, LED's, snaps) where they are supposed to go using masking tape. **Remember that your battery holder and the bottom snaps need to go on the back of your quilt square!** If you are worried you will sew the wrong thing, you can also connect the components with masking tape like the lines shown in your circuit schematic. Sew



along the masking tape to avoid making mistakes and crossing wires.

ON THE BACK: Start by sewing down the positive lead of the battery holder. **The battery holder should be sewn to the back of the quilt square. Be sure to follow your circuit schematic.** Make sure to loop the thread around 3 times at each connection. From the

positive lead of the battery holder, follow your schematic to sew on Snap 1 (socket). This snap is sewn on the same side as the battery holder.

The beginning of the positive line from battery holder to the snap. (back view)

ON THE FRONT: Now it is time to sew down the positive side (+) of your LEDs. Flip your quilt square over. Each of the LED's should be sewn to the front of the quilt square. **Before you begin sewing, double check that your LED's line up correctly with your image.** Make sure to loop the positive side (+) of each LED 3 times as you sew from Snap 1 to each LED. Once you sew down the last LED, continue according to your schematic to sew in Snap 2 (ball) at the top corner. This snap should also be on the front. Tie a knot and trim to end your positive line.



The completed positive line (front view)



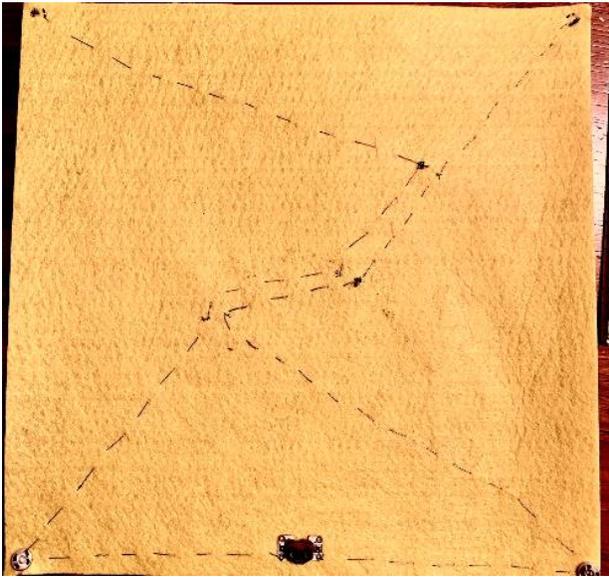
Troubleshooting

Before starting your negative line, check the front of your square. The LEDs should match both of your schematics. If they do, move on to Step 6. If they do not, stop and troubleshoot before you go onto the next step.



Step 6: Sew in the negative (-) line

Sewing the negative line is very similar to sewing the positive line. We start sewing at the battery holder then sew to Snap 3 (socket), the LEDs, and finally to Snap 4 (ball). Make sure to flip your square over to the back side before you begin sewing.



ON THE BACK (left): Start by sewing down the negative lead of the battery holder. Make sure to loop the thread around 3 times at each connection. From the negative lead of the battery holder, follow your schematic to sew on Snap 3 (socket). This snap is sewn on the same side as the battery holder. You should now have two snaps on the bottom of the quilt square.

ON THE FRONT (right): Flip your quilt square over to the front. Make sure to loop each LED 3 times through the negative lead of the LED as you sew from Snap 3. Once you sew down the last LED, continue according to your schematic to sew in Snap 4 (ball). This snap should also be on the front. Tie a knot and trim to end your negative line.



Now it is time to see if your circuit works. Put your battery into the battery holder with the positive side up. Your LEDs should light and shine steadily. If they don't, check for loose or crossed threads and check that your positive line only is sewn through positive leads.



Step 7: Attach your image to the quilt square

After you have sewn all the necessary parts, you can add your image to the quilt square. When attaching your image be sure it is positioned correctly with your LED's. You can use hot glue to glue your image to the quilt square, or if you have enough thread available, you can sew your image to the quilt square. Once you have successfully attached your image to the quilt square, put in a battery and enjoy!

