



**Design eco lampshades** or lanterns to go with energy-saving light bulbs. Collect bits of scrap coloured paper or cloth left over from art lessons or brought in from home. Ask pupils to design their lampshades. They can then shape them with wire and cover them with a cheap, light-weight material. Once this is done they can decorate them. Older pupils could use coloured glass that refracts the light in interesting ways. Light fittings and switches may need to be bought in advance.

**Electrical collages**- Making collages of electrical items from around the home. These can be made into the shape of ecological symbols such as a tree or the world or used as a papier mâché covering.

**Electricity Pylons**- Icelandic architects decided to brighten up their electricity pylons by changing them into works of art- see <http://www.dailymail.co.uk/news/article-3248509/Not-blot-landscape-Icelandic-architects-create-series-designs-statue-like-electricity-pylons-shaped-like-humans.html> How could we use art to make other electrical structures into works of art?

### **Electrical art**

Bare paint is an ink which conducts electricity. The paint has been around for a while and has been used to create interactive posters and even to light-up models in a music video.

A nice lesson during an electricity topic with a KS2 class would be to show the students the video <http://snapshotscience.co.uk/electrical-art/> and ask them how they think the LED lights up. This will require a bit of thinking as they will be used to the idea that circuits have to be made using metal wires – not paint! You could then ask them to investigate the conductivity of different substances in order to choose what could be used in the paint (you could choose lots of black substances such as charcoal, black crayon, graphite etc). They will see that even though graphite is a non-metal it conducts electricity (and this is what is in the paint).

The ink is now available in a pen which would be very easy for young children to use as it is non-toxic and (relatively) non-messy. There are a whole host of tutorials on the Bare Conductive's website which leads you through projects using the pens, such as light -up houses and robot cards.

### **Sew a Circuit**

Sew a Circuit! <http://www.primaryinspired.net/2015/01/sew-circuit-stem.html> Students learn more about e-textiles & create their own light-up bookmark!

It is surprisingly simple! To do a similar product, you'll need

- Conductive thread
- Coin cell battery holder
- Coin Cell Battery
- LED light
- Needle
- Felt, or other fabric

As part of the lesson on circuits, you can let children explore with the batteries, LED lights, & some alligator clips....Once they understand how circuits work they are ready to start.

Planning is the first step. They'll need to map out their design. Where will the battery pack be sewn on? Where will the LED go? They'll need to map out the line of stitches that will lead from the positive side of the battery pack to the positive side of the LED....& the same for the negative sides. **\*\*Make sure that the lines of stitches do not touch or cross. Doing so will cause the battery to short out.\*\***

After planning, you're ready to start sewing. Starting on either the positive or negative side of the battery pack, take at least 3 stitches through the top hole to attach the pack to the felt. Use a simple straight stitch to follow the line of stitches previously planned (I chose a zigzag for mine). When you get to the spot where the LED will be placed, again make sure to use 3 stitches or so to attach the LED to the felt. The three stitches will help make sure that there is a good connection. Then do the same for the negative side.

After the pieces are sewn on, you're ready to add the decorative elements. I simply used felt to make a rocket ship on mine. Some people designed theirs with flowers, aliens, monsters, kites, etc.



## Painting With Electricity!

### Painting With Electricity!

Video by **OurCoastVideo** on **Youtube**

<http://www.youtube.com/watch/?v=gBJRMyiJ4RM>

Artist Dave Archer, and his protege Brent Durand, were at Primary Elements Gallery in Cannon Beach for the Stormy Weather Arts Festival painting with one million volts of electricity. Durand used a custom built Tesla Coil to move paint across a sheet of glass while Archer explained the process to gallery visitors. Archer's work was featured aboard the Starship Enterprise in numerous episodes of Star Trek: The Next Generation.

## Modern Art Steady Hand Game



Left Brain Craft Brain

You have to move a wire ring around a wire shape without hitting the sides or a buzzer will sound. This project helps kids learn about circuits and explore their artistic side by creating their wire shape however they want.

### *Modern Art Steady Hand Game Supplies Needed:*

- [AAA 3 battery pack with switch](#) {affiliate}
- [DC3-24V Pedro buzzer](#) {affiliate}
- 1-2 ft. [16 gauge bare copper wire](#) {affiliate}
- 1 [alligator clip lead](#), at least 14" long {affiliate}
- [2 1/2" x 2 1/2" x 4 1/2" AMAC plastic box](#)
- Electrical tape

- Glue gun

**A note about AMAC boxes...** I really love the look of these boxes. I plan on using these to store all my Maker Space small parts when I get my redecorating act together. They're vivid and useful and the transparency is gorgeous. They've even been recognized as classic design pieces by being included in the Museum of Modern Art's permanent collection. And they make a great house for an electric toy's parts. Buut, if you don't want to invest in the AMAC boxes, you can always use a recycled cardboard box or jar.

### *Prepare Your Box*

1. You can easily melt holes in an AMAC box with a glue gun, so fire yours up without a glue stick. Once hot, grab the lid to the box and find the middle center spot. Gently press the glue gun tip to the middle spot on the lid until a small hole appears. You only want it to be as wide as the very tip of the glue gun, so don't push it through to far.
2. Next, melt a small hole in the side of the box top. This is for the playing wand wire to come out. You can either make the whole big enough for the alligator clip to fit through or make a small hole and take the clip apart to feed it through.
3. Finally, if you made a small hole in the side of the lid, take your alligator lead and pull off one clip. Feed the wire through the hole and reattach your clip. Don't feel like redoing the clip inside the lid? You can always use electrical tape to connect the wires.

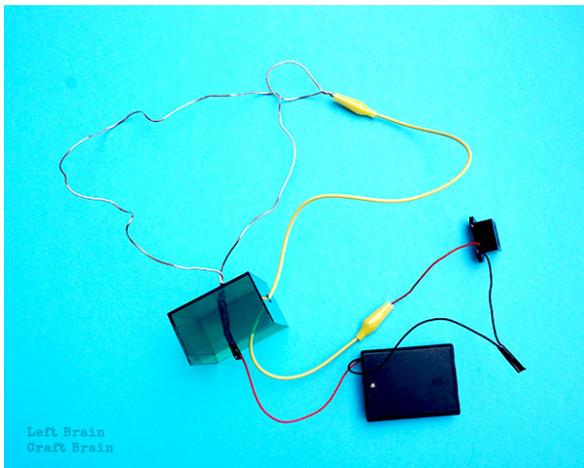
### *Create Your Playing Shape*

1. Grab a 2 ft. length of the copper wire and twist the two ends into a tight spiral, about two inches long. Then shape the rest of the wire into any form you want. This is where you can get creative! The more twists and turns, the harder the game is, so you might want to take into account your kiddo's fine motor skill level.
2. Create your circuit wand: Take a 3" piece and feed one end through the larger shape that you just made. Twist ends into a spiral and shape the wire into a circle. This is your playing wand end and should be trapped around the playing shape.



### ***Build Your Circuit***

1. Connect your items in the following order:
  1. Connect battery pack red wire to bottom of wire shape inside the box lid with electrical tape.
  2. Connect battery pack black wire to buzzer black wire with electrical tape.
  3. Connect buzzer red wire to alligator lead clip inside box lid.
  4. Connect alligator lead clip outside box lid to wand base.



### ***Play! And Buzz :)***

1. Load your batteries into the battery pack and stuff all the wires except for the playing wand lead into the box. Turn on the battery pack switch and close the box. Now play away!