



SUPER POWER: Weaving!

SUPER POUCH

LAB NOTES...

TO MAKE YOUR SUPERHERO BAG...

BUILD TIME
30
MINS

YOU WILL NEED

Old plastic bags.....○

e.g. plastic shopping bag or trash bin liners.

Thick cardboard.....○

Scissors.....○

Tape.....○

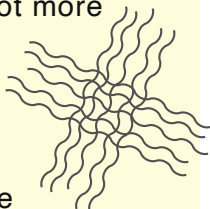
Pencil.....○

Ruler.....○

(Optional) decorating supplies.....○

WEAVING NEW MATERIALS

A single strand of plastic by itself is not very strong, but weaving it together with other strands gives it a lot more tensile strength in all directions.



Weaving is a really old technique that's been around for over 7,000 years and was originally used to make baskets. While traditionally weaving was used with natural materials, it's now used with man-made synthetic materials too. The big difference with modern weaving is that now we have huge machines to power our looms so we can weave new materials super fast!

1. Watch the video of Nanogirl making her super strong recycled superhero bag!
2. Make a loom to hold your material. Measure cut out a rectangle out of thick card. You can make it any size you like depending on how large you want your bag to be, but 25 x 20 cm is a good size.
3. Along opposite edges, mark then cut notches 1cm deep every 2 cm ensuring they line up.
4. Cut your plastic bags into long, thin strips. They can be as wide as you like, but this will be easier if your strips are about 1 cm wide.
5. Take one strip of plastic and place it over the loom through opposite top and bottom notches then tie the two ends together tightly to make a secure loop.
6. Repeat for all of the notches in your loom, these are your 'warp' strands.
7. Take another strip of plastic and tie one end onto the top left corner of the first warp strand. You are going to work from left to right across the top of the warp strands. Start by taking your loose strand (which is called the 'weft') over the top of the next warp, then under the next, then over, then under, and carry on in that pattern until you reach the right-hand end of the loom. Push the weft strand upwards so that it's tight against the top of the loom.
8. At the end of the first row, turn the weft strand around and start weaving back in the other direction, but this time, swap around the over-under pattern. Any strands which you went over on the first row, you will now go under on the second row, and so on until you reach the end of this row.
9. Keep working the over-under pattern all the way down until you've used up all the space on your warp strands. If your weft strand runs out, just tie a new one onto the old one and keep going. Don't forget that at the end of each row, you'll need to push the strands upwards a little bit so that you don't get any holes in your weaving.
10. When you reach the end of your warp threads and you can't fit any more on, tie your weft strand in a knot around the last warp strand at the end of a row.
11. Turn the loom over and carefully cut along the middle of the back of the warp strands where they are knotted. Take all the strands out of their notches, and lift your woven material off the loom.
12. To secure the warp strands, tie each one together with the one next to it at the top and bottom of your weave. Trim off any long ends.
13. You've made your very own super-strong recycled plastic material! If you want to, you can make it into a pouch by folding your material in half, then weaving or taping up the sides, leaving one side open to make a bag.
14. Now you can decorate your bag to make it look fit for a superhero!

How strong is your woven material? Can you do a tensile strength experiment to figure out how much weight your woven plastic bag can take?

What will you store in your superhero pouch? Could you add a handle, or a pocket?

Can you think of another material you could recycle or re-use to weave a new super bag?

What else can you find around you that is woven? Are you wearing any woven clothes right now? What about any furniture, or kitchen items?