

Bed Of Nails

This reminds me of that old circus trick but you can do this version at home, right away, with “stuff” that you’ve already got!

What do I need:

- Balloon
- Piece of cardboard
- Pack of drawing pins

How do I do it?

STEP 1 - Get an adult to help out and cut out a small square (about 10 cm wide) of cardboard.

STEP 2 - Very carefully pop your drawing pins through in an even fashion so the pins are about 1cm apart.

STEP 3 - Carefully turn your ‘bed of pins’ over so you can see your pins evenly spaced and sticking up into the air.

STEP 4 - Blow up your balloon.

STEP 5 - Lightly push your balloon down onto the centre of your pins. As long as you spread the load equally your balloon should be just fine.

WARNING: Be careful not to push your hand down onto the drawing pins as that would be painful. If you think that might happen then just wear some gardening gloves for extra safety.

STEP 6 - What would happen if you pushed a balloon onto just one drawing pin?

What’s going on?

Did your balloon survive? As long as you push your balloon down into the middle of a set of drawing pins you should be good to go but why does your balloon survive? It’s all because the pressure is shared between many pins.

When the balloon is just on one pin the pin goes straight through and your balloon pops. When you push down just as hard but the balloon is touching 10 pins then it’s as if each individual pin is only pushing one tenth of hard! That’s not enough to pierce your balloon!

More Fun Please - Experiment like a real scientist!

- What else could you try? Would different types of balloon make a difference?
- How far apart can you space your drawing pins and have this experiment still work?
- What’s the lowest number of pins that can support your balloon without it going pop?

