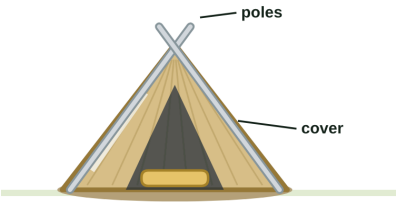
My tent design

Name: Class: Date:

Design, build and test a model tent for a small toy. Work through the five steps of engineering design: ask, imagine, plan, create and improve.

STEP 1: ASK The brief

- The tent keeps the toy dry when you spray it with water ten times.
- The tent stays standing when you wave a book beside it five times.
- The tent is built only from the materials your teacher gives you.



What does the cover need to do? What do the poles need to do?

STEP 2: IMAGINE Materials I could use

Property words: flexible, stiff, strong, light, heavy, waterproof, absorbent, transparent, opaque, brittle, durable.

Material	Its properties	Cover or poles?

STEP 3: PLAN My first design

Draw your tent. Label the cover and the poles with their materials.

For the cover I chose _____ **because it is** _____

For the poles I chose _____ **because they are** _____

STEP 4: CREATE Build and test

You need: Straws, blunt sticks or pipe cleaners for the poles. Pieces of cloth, pieces cut from a plastic bag, paper and foil for the cover. Tape or string. A clean spray bottle of water and a tray. A small toy.

> **Take care.** Your teacher cuts anything that needs cutting, and bends over the sharp ends of pipe cleaners. Use blunt sticks only. Keep plastic bags away from your face. Wipe up spilt water straight away.

1. Build your tent over the toy, on the tray.
2. Rain test: spray the tent with water ten times. Is the toy dry?
3. Wind test: wave a book beside the tent five times. Is the tent still standing?
4. Write the results in the table.

Design	Cover	Poles	Rain test: is the toy dry?	Wind test: is it standing?
First design				
Second design				
Third design				

STEP 5: IMPROVE Change one thing and test again

1. What did you change after the first test? Change only one thing each time.

2. Why did the change make the tent better, or not? Use a property word.

3. Which material was best for the cover, and which property made it best?

For teachers: answers vary. A good sheet gives a property as the reason for each material, and changes one thing between tests.