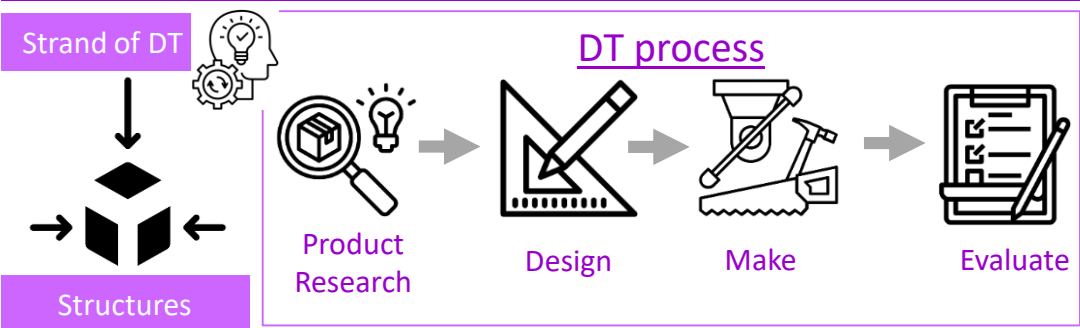


Design Brief: To make a bridge which can carry the weight of a toy car.



Vocabulary	
strength	the quality or state of being strong
stiffness	the physical property of being inflexible and hard to bend
stability	is the quality of being unchanging
deck	the surface of a bridge
anchor	holds the bridge in the ground
beam bridge	a bridge in which a horizontal beam is supported at each end by pillars
suspension bridge	a bridge in which the weight of the deck is supported by vertical cables
cantilever bridge	a bridge that is only anchored at one of its ends with two cantilevers
arch bridge	a curved design with weight supported at each end
truss bridge	a bridge whose main element is a truss which is a structure of connected elements that form triangular units

Skills

gluing, folding, cutting

What?

- A **bridge** is a **structure** to cross an open space or gap.
- A **beam bridge** is a **horizontal beam** supported at each end by **pillars**.
- A **suspension bridge** has huge **cables** to hold the bridge up.
- An **arch bridge** is a **curved** shape.
- A **truss bridge** is made up of **triangles**.
- Engineers use particular techniques to make structures strong.
- **Isambard Brunel** was an **engineer** who designed bridges.

- **Structures** can be **manipulated** to improve their **strength** and **stiffness**.
- Designs must show how a product meets the design criteria.

- Design criteria:
- Has a strong, stiff deck.
 - Has strong and stable anchors.
 - One of the strengthening techniques we have experimented with has been used.
 - Is able to successfully have a toy car travel from one end to the other.

- Designers/engineers always evaluate a product.
- An **evaluation** should include the design brief, what went well, challenges, how they were dealt with and what you'd change next time.
- It is important for a designer to test and evaluate their finished product against the design criteria by **conducting** a variety of **tests**.

- **Structures** can be **manipulated** to improve their **strength** and **stiffness**.
- Structures are more stable if they have a **wide** and **flat base**.
- **Strength** means being **strong**.
- **Stiff** means being **hard to bend**.
- **Stable** means **not** likely to **move** or **change**.
- Overlapping lollipop sticks and creating a folded layer of card can strengthen a structure.

