

**Years
3/4**

Mechanical systems

Pneumatics

tipper truck	jack-in-the-box	class display
moving creature	shop window display	
moving toy	other – specify	

themselves	peers	younger children
older children	shoppers	visitor to school
other – specify		

celebration event	information	educational
play	advertising	interests and hobbies
campaign other – specify		

examples of products and books, photos and videos showing pneumatic systems

card, plastic sheet, PVA glue, masking tape, parcel tape, sticky pads, pipe cleaners, elastic bands, syringe clips, left/right handed scissors, snips, card drills, cutting mats, hole punches, finishing media and materials

components, fixing,
attaching, tubing, syringe,
plunger, split pin, paper
fastener

user, purpose, function,
prototype, design criteria,
innovative, appealing,
design brief, research,
evaluate, ideas,
constraints, investigate

- Understand and use pneumatic mechanisms.
- Know and use technical vocabulary relevant to the project.

- Develop a design brief with the children within a context which is authentic and meaningful.
- Discuss with children the purpose of the products they will be designing and making and who the products will be for. Ask the children to generate a range of ideas, encouraging creative responses. Agree on design criteria that can be used to guide the development and evaluation of the children's products.
- Using annotated sketches and prototypes, ask the children to develop, model and communicate their ideas.
- Ask the children to consider the main stages in making before assembling high quality products, drawing on the knowledge, understanding and skills learnt through IEAs and FTs.
- Evaluate the final products against the intended purpose and with the intended user, where safe and practical, drawing on the design criteria previously agreed.

- **Spoken language** – ask relevant questions to extend knowledge and understanding. Build technical vocabulary. Consider and evaluate different viewpoints.
- **Art and design** – use and develop drawing techniques. Use colour, pattern, line, shape.
- **Science** – when evaluating, make systematic and careful observations and take accurate measurements.

Pupils should be taught to work safely, using tools, equipment, materials, components and techniques appropriate to the task. Risk assessments should be carried out prior to undertaking this project.

The diagram is a 3D radar chart titled "D&T Essentials". It features five axes extending from a central point, each representing a different aspect of design and technology. The axes are labeled as follows:

- User**: Located at the top vertex.
- Purpose**: Located at the top-right vertex.
- Innovation**: Located at the bottom-right vertex.
- Authenticity**: Located at the bottom vertex.
- Design Decisions**: Located at the bottom-left vertex.

Each axis is marked with numerical values from 0 to 5, indicating a scale of importance or achievement. The chart is composed of several concentric hexagonal layers, with the innermost layer representing the value 0 and the outermost layer representing the value 5. The chart is currently empty, with no data points plotted.