

DT Knowledge Organisers

Spring One- 2024

Year 1

No DT this term.



KS1 D.T: MECHANISMS KNOWLEDGE ORGANISER



Overview	
Wheels and Axles	
<p>Mechanisms are the parts that make something work.</p> <p>-Mechanisms are all around us! Most objects that help us in our lives are made up of different mechanisms.</p> <p>Wheels and Axles are mechanisms that help things to move.</p> <p>-<u>Wheels</u> are circular objects that roll on the ground, helping vehicles and other objects to easily move.</p> <p>-<u>Axles</u> are rods that help wheels to rotate. The wheel can either rotate freely on the axle, or be attached to (and turn with) the axle.</p>	

Example Mechanisms		
	<p>Ferris Wheel</p>	<p>-A <u>Ferris Wheel</u> is one example of a wheel and axle mechanism in action. Normally, Ferris Wheels are <u>fixed to the axle</u>. Force is applied to the axle which makes it spin. This makes the giant wheel spin too!</p>
	<p>Roller Skates</p>	<p>-<u>Roller skates</u> are another example of wheel and axle mechanisms. Obviously, there are four wheels here instead of one, and the wheels are much smaller. Often, the <u>wheels rotate free from the axle</u>, but sometimes they are fixed.</p>
	<p>Toy Car</p>	<p><u>Toy cars</u> (and real cars) use wheel and axle mechanisms to move. On toy cars, the <u>wheel is normally fixed to the axle</u>, meaning both the wheel and axle spin. This makes it really important that there is not too much <u>friction</u> on the axle, or the wheel will not move!</p>

Designing	Key Vocabulary
<p>-You need to think about <u>who your product is for</u> – what is its <u>purpose</u> and who is going to use it?</p> <p>Chassis</p> <p>-The chassis is the frame or base on which the vehicle is built. A chassis should be strong and rigid enough to hold the vehicle.</p> <p>-The chassis should include axle holders. These designed so that the axles do not have too much friction against them.</p> <p>Axle</p> <p>-Consider what you will make your axle from. It needs to be strong enough to hold the wheels, and fit freely in the axle holder.</p> <p>Wheel</p> <p>-Consider whether your wheels will be fixed to the axle, or free.</p> <p>-If fixed, they need to be firmly attached. If not, they need a stopper to prevent them from falling off.</p> <p>-Some materials allow the wheel to move more freely on surfaces.</p>	<p>Mechanism</p> <p>Wheel</p> <p>Axis</p> <p>Axle Holder</p> <p>Friction</p> <p>Dowel</p> <p>Chassis</p> <p>Design</p> <p>Make</p> <p>Evaluate</p>

Making & Evaluating	
<p>Making</p> <p>-Wheels could be made from wood, card, MDF, plastic, cotton reels, or foam-covered reels.</p> <p>-Axles could be made from dowels or paper sticks.</p> <p style="text-align: center;"> </p> <p>Free Axles - Fixed Wheels</p> <p>-The axles move with the wheels. Loose-fitting axle-holder, tightly fixed wheels.</p> <p>Fixed Axles - Free Wheels</p> <p>-The axles will remain fixed to the chassis. The wheels move alone. Tight-fitting axle-holder, loose-fitting wheels.</p>	<p>Evaluating</p> <p>-How well does your mechanism <u>work</u>? Does it move <u>smoothly</u>?</p> <p>-Does it meet its <u>purpose</u>?</p> <p>-<u>Who</u> would use your mechanism? What would they like about it?</p> <p>-How did you prevent any unwanted friction?</p> <p>-How did this affect the mechanism?</p> <p>-What else could you do to <u>improve your mechanism</u>?</p>



Health and Safety



- | | | | | | | | |
|---|--|--|---|--|---|---|--|
| -Remove any jewellery and tie back long hair. | -Wear an apron and roll up your sleeves. | -Walk safely and calmly around the classroom/workshop. | Keep your work area and floor area clear – keep your belongings well clear. | Follow the teacher's cutting instructions carefully. | Make sure that you are wearing the correct equipment for tasks. | If you need to move around with scissors, hold around the closed blades, facing down. | Report all spillages & clean up properly after yourself. |
|---|--|--|---|--|---|---|--|

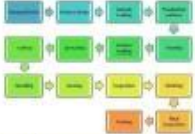







LKS2 D.T: TEXTILES KNOWLEDGE ORGANISER



Overview	
<p>Sewing Techniques</p> <p><u>Textiles are flexible materials woven from fibres</u></p> <ul style="list-style-type: none"> -Textiles are used to make clothing, sheets, towels, linen, carpets, rugs and a wide variety of other products. -Sewing involves the joining of different textile fabrics using a needle and thread. -Sewers can use a range of different sewing styles to produce strong joins. -Some stitches also create an <u>attractive-looking seam</u> (a line of stitching joining fabrics together). Thinking about the way a product looks is called '<u>aesthetics</u>', and is highly important in textiles. 	 

Example Textiles		
	<p>Phone Cases</p> <p>Can be made with cotton/ floss thread/ leather</p> <p>Decorated using running back stitch</p>	<ul style="list-style-type: none"> -Phone Cases are designed to protect the phone inside them – phones are often very expensive! Therefore they need to be soft and durable. -Rubber and leather are good materials for phone cases, because they are tough. However, cotton/woolen fabrics are sometimes used as they offer a soft cushion for the phone. -The pictured product has used a <u>backstitch</u> for joining fabrics together. This is a particularly strong stitch, that will keep fabrics together securely.
	<p>Purses and Wallets</p> <p>Made with many different materials</p> <p>Joined with Blanket Stitch technique and decorated using cross-stitching</p>	<ul style="list-style-type: none"> -Wallets and purses can be made using a wide variety of materials. They are designed to be durable, to keep contents safe, and yet also to be <u>aesthetically-pleasing</u>. -This purse has been joined using the <u>blanket stitch</u> technique. Whilst this can be quite time-consuming, it creates an <u>attractive seam</u> and a <u>secure join</u>. -The creator has then created <u>elaborate embroidery patterns</u> to decorate the purse.

Designing	Key Vocabulary
<p>Designers of textile products need to think about the <u>purpose</u> (what does it do?) and the <u>user</u> (who will use it?)</p> <p>Fabrics -Different fabrics have <u>different properties</u> (characteristics) which make them good for different purposes. For example, some are soft and provide a cushion (e.g. felt) whilst others can be thin and lightweight (e.g. silk, cotton). This can make them easier to join/ decorate with.</p> <p>Joining – There are lots of <u>different stitches</u> that you could use to join the fabrics together (see below). Some are easier and quicker, (e.g. running stitch) some are more secure and do not show the seam as obviously (e.g. backstitch), some help to improve certain fabrics (e.g. overstitch) and some are more aesthetically pleasing (e.g. blanket stitch).</p> <p>As a part of the <u>design process</u>, you should be able to sketch and annotate different ideas. You should also be able to plan the main stages of making, using either a checklist, a storyboard, or a flowchart.</p> 	<ul style="list-style-type: none"> Textiles Sew/ Stitch Thread Needle Appliqué Seam Aesthetics Running Stitch Back Stitch Over Sew Stitch Blanket Stitch

Making & Evaluating	
<p>Making</p> <p>-Here is a guide to the different stitches that you may use to join fabrics together:</p> <p>Running Stitch – This is the simplest stitch. It creates a dotted line effect. Remember to leave a space from the previous stitch.</p> <p>Back Stitch – Similar to the running stitch, except that the thread doubles back so that there is no visible spacing between stitches. It is a very strong and secure stitch.</p> <p>Over Sew Stitch – The over sew stitch is a good way to neaten the raw edge of fabrics. It involves sewing over the edge of the fabrics.</p> <p>Blanket Stitch – Another way to reinforce the edges of thick materials. This stitch is popular as it is thought to be aesthetically-pleasing.</p>    	<p>Evaluating</p> <p>-How does your textile look? Would your user like it? Why or why not? How could you improve the way it looks?</p> <p>-Are your attached fabrics secure? How did you achieve this? Which type of stitch did you use? How could fabrics be joined more securely?</p> <p>-Which materials did you choose? Why? Does your product perform its purpose well? Why or why not?</p> <p>What do you like about your product? How could you improve your product?</p> 

Health and Safety

- Remove any jewellery and tie back long hair.
- Walk safely and calmly around the classroom/ workshop.
- When using a needle, keep your fingers well clear. Use a thimble where available.
- When you are not using your needle, keep it in the same safe place.
- Follow the teacher's cutting instructions carefully.
- Make sure that you are wearing the correct equipment for tasks.
- If you need to move around with scissors, hold around the closed blades, facing down.
- Report any accidents & clean up properly after yourself.

Year 4

No DT this term.

Year 5

No DT this term.

Year 6

Food celebrating culture and seasonality (including cooking and nutrition requirements for KS2)



UKS2 D.T: FOOD AND NUTRITION KNOWLEDGE ORGANISER



Preparing and Cooking Processes

Preparing Processes	Cooking Processes
<p>Preparing processes are the different ways that we get food ready to be eaten.</p> <ul style="list-style-type: none"> -Slicing: cutting food using a knife. -Mixing: to blend ingredients together, using a spoon, blender, or whisk. -Weighing/measuring: to get the right amount of an ingredient, using scales, tableteaspoons -Grating: to peel a layer off something (like carrots or cheese) using a peeler or grater. -Serving: making food look nice on the plate. -Adding/ substituting: changing the taste of food by adding or replacing ingredients. 	<p>Cooking processes are the different ways that we heat food before it is eaten.</p> <ul style="list-style-type: none"> -Baking: to cook food in a heated oven. -Boiling: to cook food in boiling (100°C) water. -Frying: to cook food in a pan of heated oil. -Grilling: to cook food by putting it under a hot grill (like a radiator in a cooker). -Griddling: to cook on a flat iron plate called a griddle. -Steaming: to cook using steam, normally from boiled water. -Poaching: to cook by simmering in a small amount of liquid.

A Healthy and Varied Diet

Food Groups

You should now know how much to eat of each food group

- Fruit and vegetables** – Eat lots! About 5 portions per day. Good for vitamins, minerals and fibre. Fresh, tinned and juices all count.
- Carbohydrates** – Eat lots! Include in every meal. Good for energy (carbohydrates), vitamins, minerals and fibre.
- Proteins** – You should eat about 2-3 portions per day. Good for muscle-building (protein), vitamins and minerals.
- Dairy** – You should eat about 2-3 portions per day. Good for muscle-building protein, vitamins and minerals.
- Fats and Sugars** – Only eat occasionally and in small amounts. Good for energy and fat reserves in small amounts. Cut down on saturated fats.

A Varied Diet

--In order to stay healthy, it is important that we eat a balanced diet of foods from each of the five food groups. Too much of any one food group is not healthy for us.

-You should be able to create a weekly **food plan**, incorporating a healthy and varied diet of foods across each day and the week.

-Your plan should apply your understanding of which foods within groups have advantages and disadvantages (e.g. 'fish has less fat than red meat' and 'use a low-fat butter alternative).

-You may even be able to understand calories and how they work, and count these in your food plan!

	MON	TUE	WED	THU	FRI
Breakfast	Oatmeal Smoothie	Berry Smoothie	Cherry Smoothie	Oatmeal Smoothie	Berry Smoothie
Mid-morning snack	Eggy Crisp / Ginger Stick	Eggy Crisp / Ginger Stick	Eggy Crisp / Ginger Stick	Eggy Crisp / Ginger Stick	Eggy Crisp / Ginger Stick
Lunch	Salmon Salad (Rough Bread / Potatoes)	Slow Roast / Potatoes (Rough Bread / Potatoes)	Roast Beef (Rough Bread / Potatoes)	Meat Pie / Potatoes (Rough Bread / Potatoes)	Salmon Salad (Rough Bread / Potatoes)
Afternoon snack	Track Bar	Track Bar	Track Bar	Track Bar	Track Bar
Dinner	Coconut Curry	Meat & Cheese	Veget Chili	Coconut Curry	Veget Chili

Where Food Comes From

Grown, Raised, Caught

It is important to know that foods are grown, raised and caught more easily during certain seasons. This is called **seasonality**.

Some food is **grown**

- In order for us to get cucumbers, we need to **grow** a cucumber plant. Cucumbers grow on the vines of cucumber plants. In the UK, the cucumber season is between March and June, when they grow most naturally in the seasonal conditions.

Some food is **raised**

- In order for us to be able to eat chicken, we need to **raise** chickens. Eggs are **laid** by female chickens. In order to be sustainable, we need to know that most chicks are born in the spring/ summer seasons.

Some food is **caught**

- In order for us to get tuna, we need to **catch** the tuna-fish. There are also seasonal changes for caught food, as animals can migrate. E.g. a lot of tuna is caught between November-May in the Pacific off San Francisco.

Eating Sustainably

- With modern technology, it is possible to grow and rear food out of season.
- However, growing and rearing foods out of season consumes a lot of energy, because the process takes place in artificial conditions, and needs a lot of resources, for example heat, light, water and nutrients.
- Eating sustainably is about finding the right balance between your food needs and your food choices. It helps to reduce our **carbon footprint**.

Key Vocabulary

- Healthy & Varied Diet
- Food/M meal Plan
- Calories
- Saturated Fat
- Adding/ Substituting
- Griddling
- Steaming
- Poaching
- Seasonal Produce
- Seasonality
- Sustainability
- Health & Safety

Food from Around the World

Seasonal Foods around the World

-It is important to remember that the seasons are different in different places over a year.

-In the **northern hemisphere**, spring takes place between March and May. In the southern hemisphere, spring is September to November.

Therefore, **foods are in season in different places at different times of the year**. Cucumbers can be naturally grown in the northern hemisphere March-June, and in the southern hemisphere October-December.

UK Seasonal Foods

Winter: Apples, Beetroot, Sprouts, Cabbage, Leeks, Mushrooms, Onions, Parsnips, Pears, Turnips.

Spring: Artichokes, Asparagus, Aubergines, New Potatoes, Rhubarb, Rocket, Spinach, Spring Greens, Spring Onions.

Summer: Blackcurrants, Broad Beans, Cherries, Chillies, Courgettes, Gooseberries, Garlic, Strawberries, Water Cress.

Autumn: Butternut Squash, Cauliflowers, Chicory, Elderberries, Marrow, Pumpkin, Wild Mushrooms, Squash.

Health and Safety

- Remove any jewellery and tie back long hair. Ideally, wear a hair net.
- Wear an apron and roll up your sleeves. Tie your apron securely.
- Wash your hands with hot water and antibacterial soap, for at least 20 seconds.
- Washing your hands should be done before, during and after preparing food.
- Use different chopping boards and knives for raw meat & other foods. This stops bacteria spreading.
- Use a food thermometer to check that food is cooked through.
- Check the dates on food, and check for allergies & diet e.g. vegetarian, vegan.
- Make sure that you clean up properly after yourself.