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| Lesson 2: Energy and States  | Recommended age group:7 – 11 Years  | Learning Outcomes: Students will:* Be able to explain that some forces require contact, but magnetic forces can act as distance. – Explain and demonstrate how magnets attract and repel and why this doesn’t always happen.
* Have an understanding of more complex forces and how they act in a practical manner.
* Have an understanding of forming a circuit to generate electricity.
* Have a strong understanding of solids, liquids and gases.
* Be able to explain the materials change when heated or cooled and the effects this can have.
 | Suggestions:* Students should recap material that they have previously learnt.
* Try to film or record the progression of your students.
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| Activity  | Description  | Objectives | Teaching points  | Differentiation  |
| Solids, Liquids, Gases Game  | This is a great way to warm up whilst learning the characteristics of solids, liquids and gases. Students should move around the space at different paces and work with varying students.When the teacher shouts:*SOLID:* form a solid block as a group*LIQUID:* gets into pairs and demonstrate melting actions *GAS:* float through the space |
| Task 1: Icebergs  | This task introduces states of water and ice. Imagine you are an iceberg squeezing your muscles to freeze. Imagine the sun is heating up and you begin to melt. Reverse the whole process. Creating movement melting to the floor and then back up to standing.Development: Ask the students to create movement using the following more complex instructions:*Freeze and crack*, *body frozen*, *legs melt*, *melt to a puddle*, *reverse and freeze*, *body frozen and legs melt, right side frozen, left side melted*.  | * Create a sequence using the idea of an iceberg melting and freezing. Students should create movement using imagery to help to create this.
* Demonstrate contrasting movements.
 | * To help your students in this task, explore ideas together instead of individual creation.
* Put the students into groups and give them a specific sequence of instructions to create their movement around.
* Alternatively, get them to explore movement as a group rather than as individuals.
 | 🡹 Give students more than one instruction to respond to and present them with the ‘impossible’ so that their movement response and ideas are challenged. 🡻 Work as a whole class, and present students with a basic idea first before they explore movement on their own.  |
| Task 2: Group Icebergs  | This task involves making a group piece looking at the way states change. Watch the BalletBoyz demonstration. As a group form: * Ice berg shapes
* High sea
* Low sea
* A cloud evaporating
* A fully formed cloud
* Lightning
 | * Get the students working as independent groups.
* Make the transitions between shapes seamless.
 | * Guide the students through the different stages of the cycle, showing visual images
* Using the video, highlight the detail of the BalletBoyz ideas.
 | 🡹 Break the class down into smaller or bigger groups depending on what would challenge you class. Introducing more students to the group will mean more people to manipulate into the sequence. 🡻 Work as a class to create the movement and ideas. As a teacher, guide your students through with the video. Replicate what the BalletBoyz do and then ask students for ideas of how they could adapt the movement to change it.  |
| Task 3: Wind Turbines  | This task involves watching and learning the movements that make a wind turbine, a chain of components to make a machine work: * Blades
* Low-speed & high-speed shaft
* Gear box
* Generator
* Cable
 | * Learn all the component movements that make up a wind turbine.
* Learn these movements with accuracy and perform with the qualities seen in the video.
 | * Use a visual resource – how the students images of wind turbines which will help students to understand the component parts.
 |  🡹 Ask students to adapt the movement to make it their own, so each student has a differing variation of their turbine. 🡻 Break the movement down, allow students to repeat the learning until they are confident.  |
| Task 4: Generate  | This task involves looking at generating energy through movement. Looking at examples such as powering a kettle or charging a musical device. Students should form groups, and each become one of the components that makes up the chain: * Blades
* Low-speed shaft
* Cogs
* Gearbox
* High-speed shaft
* Generator
* Cable

Working in a line they should build the energy cumulatively, imagining they are producing a large amount of energy.  | * Understand how separate components work together as a chain
* Focus on changes in dynamic qualities – e.g. the difference between powering just one musical device and 500 kettles!
 | * Encourage your students to generate more energy if needed or to slow down the pace depending on what they are powering.
* Use it as a task to explore different speed and how that effects dynamics.
 | 🡹 Experiment and develop the task with repetition and expanding the chain. Try having multiple students working together to form each component. You could look at electrical circuits and do a similar task. 🡻 Work in smaller groups to build on the idea of creating energy and how this can be done by increasing speed and intensity of movement.  |

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| Assessment: What are we looking for?  | Things to consider:  | Inclusion:  | Discussion & appreciation:  |
| * Strong understanding of how states change and the effect this has on movement quality.
* The component parts needed to build a circuit to generate power.
* Keeping focus and concentration throughout.
* Strong attention to detail
* Being aware of others in the space.
 | * Students may feel self-conscious when initially beginning tasks. Try creation in groups before students create individually or in duets.
* Reiterate that when creating there is no right or wrong answer.
* Try playing different music to help the dynamic range of ideas.
 | * All tasks are easily adaptable to suit everyone’s needs.
* Introduce and conclude classes with the learning outcomes provided.
* Allow students to ask questions throughout the process.
* Open up opportunities for students to feedback to each other.
 | Ask students how they felt after tasks, what did they like, what would they like to change when creating in that method in the future. Always present work to the class, have a look at what others have come up with and feedback on this positively.  |
| Cross Curricular Links: | SMSC:  | Risk Assessment:  |
| **Science:*** Construct circuits that are built to generate electricity.
* Learning about states and how they change and what makes them change.
* Renewable energy.

**Dance:** * Explore different movement patterns.
* Explore different movement patterns. Develop balance, agility and co-ordination
* Perform dances using a range of movement patterns
* Make actions and sequences of movement
* Develop flexibility, strength technique, control and balance
 | * Building relationships in duet and group tasks.
* Inviting positive feedback and encouragement.
 | * Ensure the space is clear with equipment to the side of the room.
* If your class is big, break it down into smaller groups when you can.
* Ensure your students have had a thorough warm-up before partaking in any movement.
* Make sure students keep well hydrated throughout the class.
* Ensure you are aware of any medical/health needs of the participating students prior to any physical activities taking place.
* Ensure drinks are in bottles to avoid spillages. Spillages to be mopped up immediately and a wet floor sign to be visible until the floor is dry
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