



## The Body Battery Worksheet

### TEACHER GUIDANCE SHEET

#### Required Material:

- ▶ P.E. Kit
- ▶ Exercise Mat
- ▶ Space to Move Around

#### L.O:

- ▶ To understand how much energy it takes to power certain items.
- ▶ To understand the importance of a balanced diet and exercise.

#### STARTING ACTIVITY (5mins)

**GROUP DISCUSSION** – Explain to the class that in this lesson we will be exploring energy and that almost everything consumes different levels and types of energy. Ask if the pupils can name different types of energy and what kind of things that energy powers.

#### Examples are:

- ▶ Electrical
- ▶ Light
- ▶ Chemical
- ▶ Heat
- ▶ Nuclear
- ▶ Gravitational

#### MAIN TEACHING (10mins)

Ask the class if they think they could power a light bulb with just their own energy and ask for volunteers to suggest how long they could power the bulb for.

Tell them that if we were to convert calorific energy into electrical energy (or wattage) then 1 Watt would translate to about 0.2 calories per second.

Explain to the class that they will be performing a series of one minute exercises to explore how long they could power various different electronic devices.

Perform this circuit a number of times in order and once the children are comfortable with each exercise and what item it relates to, mix them up to make it more of a challenge. For any children who are unable to perform the activity, ask them to help by shouting out the exercises.

#### MAIN TASK - Body Battery (15mins)

Tell the class that as humans we produce and utilise a few different types of energy, one being chemical and the other being calorific energy. Explain that a calorie is a unit of energy that is used in nutrition, with a single calorie representing the amount of heat energy required to raise the temperature of a gram of water.

To put this into perspective tell the pupils that running on the spot for one minute burns on average 11.4 calories. An average size glass can hold up to about 236 grams of water. So to burn off that amount of water using exercise we would have to run on the spot for just over 20 minutes.

Highlight that whilst it is not always a good thing for us to count the calories in the food we eat, it can be good practice to manage the amount of calories we take in and balance that out with the right amount of exercise.

#### PLENARY (2mins)

**GROUP DISCUSSION** – Discuss why it is bad to focus too much on counting calories, but also important to have a balanced diet and ensure we get enough physical exercise.



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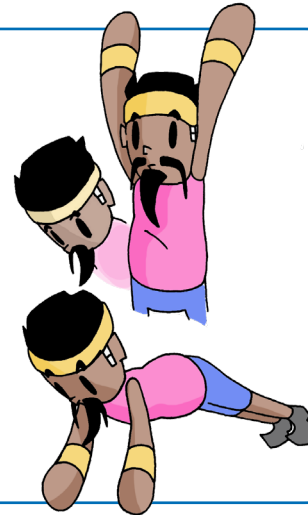
### CHILDREN'S SHEET

Perform all the following exercises to experience how much energy it would take to power each object.



#### LED Light: 5 Watts

25 Burpees equivalent of powering an LED lightbulb for 10 seconds.



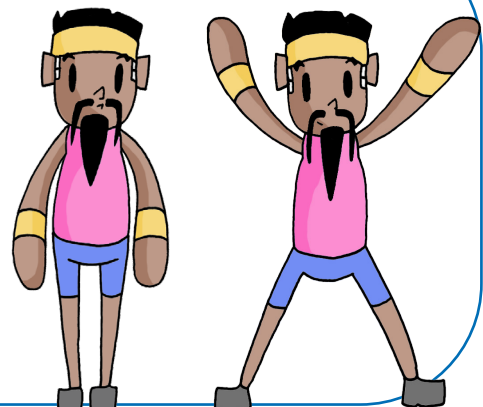
#### Smartphone: 6 Watts

If you high knee jogging on the spot for one minute will power your smartphone for 4.2 seconds.



#### Games Console: 120 Watts

One minute of star jumps will power your games console for 20 seconds.





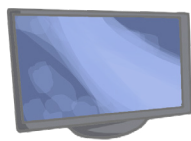
CLIMATE



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### CHILDREN'S SHEET

Perform all the following exercises to experience how much energy it would take to power each object.



**TV: 400 Watts**

One minute worth of deep lunges can power a TV for 0.05 seconds.



**Laptop: 50 Watts**

One minute worth of jumping on the spot can power a laptop for 1 second





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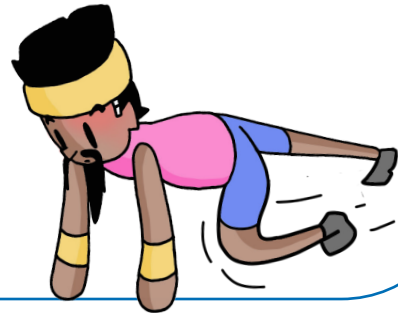
### CHILDREN'S SHEET

Perform all the following exercises to experience how much energy it would take to power each object.



#### Desk Fan: 100 Watts

Doing mountain climbers for one minute will keep a desk fan blowing for 0.4 seconds.



#### Wind Turbine: 7 Megawatts

One minutes sprinting as fast as you can on the spot would power an industrial wind turbine 0.000012.

