Physics - Key Stage 3 - Energy

Lesson 16: End of Topic Review

Mrs Evans

Independent practice: calculate...

1. ...energy for a 20 W bulb that is on for 10s

2. ...time for a 5 W bulb that transfers 200 J of energy

3. ...power for a bulb that transfers 500 J every 50 s

4. ...energy for a 0.2 kW bulb that is on for 2 mins

Values
Equation
Substitute
Rearrange
Answer
Units

For an extra challenge, convert your final answers into different units, such as J into kJ

Support
-fill in the gaps

1. …energy for a 20 W bulb that is on for 10s

energy = power x time, **energy = ___ W x ___ s,** **energy = ___ J**

2. …time for a 5 W bulb that transfers 200 J of energy

time = energy ÷ power, **time = ___ J ÷ ___ W,** **time = ___ s**

3. …power for a bulb that transfers 500 J every 50 s

power = energy ÷ time, **power = ___ J ÷ ___ s,** **power = ___ W**

4. …energy for a 0.2 kW bulb that is on for 2 mins

energy = power x time, **energy = ___ W x ___ s,** **energy = ___ J**

Independent practice: change the incorrect words to make the method correct

1. Clamp a test tube securely
2. Measure 10 ml of tap water using a measuring cube
3. Pour the water into the boiling tube
4. Record the final temperature of the water using a ruler
5. Measure 4 g of nut 1 using a balance
6. Secure spike 6 cm below boiling tube using a thermometer
7. Spike nut onto pin carefully
8. Set water alight using a match
9. Watch the nut while it burns
10. Record the final temperature of the nut using a thermometer
11. Repeat steps 1 - 10 for nut 2 and 3

Support

- the bold words are incorrect and need to be changed

1. Clamp a **test** tube securely
2. Measure 10 ml of tap water using a measuring **cube**
3. Pour the water into the boiling tube
4. Record the **final** temperature of the water using a **ruler**
5. Measure 4 g of nut 1 using a balance
6. Secure spike 6 cm below boiling tube using a **thermometer**
7. Spike nut onto pin carefully
8. Set **water** alight using a match
9. Watch the nut while it burns
10. Record the final temperature of the **nut** using a thermometer
11. Repeat steps 1 - 10 for nut 2 and 3

Analysing our results: calculating a mean

Food type	Temperature of water (°C)		
	Start	Final	Change
Macadamia nut	20	62	
Cashew nut	20	51	
Pecan nut	20	59	

To find the change in temperature: final temp - start temp

Independent practice: write a conclusion

The nut that contained the most energy was...

I know this because...

Support
- use this scaffold to help structure your conclusion

The nut that contained the most energy was _____?_____.

I know this because the water had the _____?_____ temperature rise after the nut had fully burnt, which means the nut transferred the _____?_____ energy to the water.

This nut had temperature rise of ___?___, whereas the _____?_____ had a temperature rise of ____?____ and the _____?_____ had a temperature rise of ____?____.

Independent practice: change the incorrect words to make the statement correct

1. The fossil fuels are nuclear, (crude) oil and (natural) gas
2. The control variable is the thing you change
3. Time = power ÷ energy
4. The only unit for time is seconds
5. Hydroelectricity and tidal are examples of wind renewable energy resources

Support
- the bold words are incorrect and need to be changed

1. The fossil fuels are **nuclear**, (crude) oil and (natural) gas
2. The **control** variable is the thing you **change**
3. Time = **power ÷ energy**
4. The **only unit** for time **is** seconds
5. Hydroelectricity and tidal are examples of **wind** renewable energy resources

Independent practice: complete the table

> choose 🙂 if an advantage, choose 🙁 if a disadvantage

> write a **Y** in the box if the statement is true for the resource

🙂 / 🙁 ?	Description	Solar	Water	Wind	Geo thermal	Bio mass	Coal	Gas	Oil	Nuclear
🙂	not finite	**Y**	**Y**	**Y**	**Y**	**Y**				
	finite									
	affected by weather									
	reliable									

Independent practice: complete the table

🙂 / 😕 ?	Description	Solar	Water	Wind	Geo thermal	Bio mass	Coal	Gas	Oil	Nuclear
	renewable									
	non-renewable									
	releases carbon dioxide									
	does not release carbon dioxide									

Independent practice: complete the table

🙂 / 😕 ?	Description	Solar	Water	Wind	Geo thermal	Bio mass	Coal	Gas	Oil	Nuclear
	ready - made fuel									
	relatively cheap to obtain									
	can use to directly heat water									
	may leak radioactive material									

Independent practice: complete the table

🙂 / 😕 ?	Description	Solar	Water	Wind	Geo thermal	Bio mass	Coal	Gas	Oil	Nuclear
	only suitable in certain locations									
	needs new specialist equipment									
	ruins the look of the sea									
	damage the habitats of birds or fish									

Independent practice:
write letter to the prime minister

Tell him about...

>the advantages of using renewable energy resources

>the disadvantages of using non-renewable energy resources