Trend task

Physical World Questions

Approach: Independent Level: Year 4 and year 8

Focus: Student knowledge in areas coverd by these multiple choice questions.

Resources: None

1. A litre of water at a temperature of 30°C is mixed with a litre of water at 50°C. The temperature of the water just after mixing will be about a. 20°C b. 30°C c. 40°C d. 50°C e. 80°C 2. Which makes its own light? a. a burning fire b. a red reflector on a bike c. a glass window d. the moon wresponses 1999 ('95) 1999 ('95) year 4 year 8 4 (5) 9 (8) 3 (4) 3 (2) 11 (14) 20 (21) 6 (7) 6 (7) 76 (70) 62 (62) 31 (29) - 14 (15) - 49 (51) -	Questions/instructions:				
temperature of the water just after mixing will be about a. 20°C b. 30°C c. 40°C d. 50°C e. 80°C 2. Which makes its own light? a. a burning fire b. a red reflector on a bike c. a glass window 1999 (95) 1999 (95) 1999 (95) 1999 (95) 1999 (95) 1999 (95) 1999 (95) 1999 (95) 1999 (95) 1999 (95) 1990 (95) 1999 (199) 1999 (199) 1999 (199) 1999 (199) 1999 (199) 1999 (199) 100 (199) 100 (199) 100 (199) 100 (199) 100 (199) 100 (199) 100 (199) 100 (199) 100 (199) 100 (199) 100 (199) 100 (199)	1. A litre of water at a temperature of 30°C is mixed				
mixing will be about a. 20°C b. 30°C c. 40°C d. 50°C e. 80°C 2. Which makes its own light? a. a burning fire b. a red reflector on a bike c. a glass window year 4 year 8 4 (5) 9 (8) 3 (4) 3 (2) 11(14) 20 (21) 6 (7) 6 (7) 76 (70) 62 (62) 31 (29) - 14 (15) - 6 (5) -	with a litre of water at 50°C. The	% responses			
a. 20°C b. 30°C c. 40°C d. 50°C e. 80°C 2. Which makes its own light? a. a burning fire b. a red reflector on a bike c. a glass window 4 (5) 9 (8) 3 (4) 3 (2) 11 (14) 20 (21) 6 (7) 6 (7) 6 (70) 62 (62) 31 (29) 14 (15) 16 (5) 17 (17) 18 (18) 19 (18) 19 (19) 10 (11) 11 (14) 12 (15) 13 (15) 14 (15) 15 (15) 16 (15) 17 (15) 18 (15) 19 (18) 19 (19) 1	temperature of the water just after				
b. 30°C c. 40°C d. 50°C e. 80°C 2. Which makes its own light? a. a burning fire b. a red reflector on a bike c. a glass window 3 (4) 3 (2) 11(14) 20 (21) 6 (7) 6 (7) 76 (70) 62 (62) 31 (29) - 14 (15) - 6 (5) -	mixing will be about	year 4	year 8		
c. 40°C d. 50°C e. 80°C 2. Which makes its own light? a. a burning fire b. a red reflector on a bike c. a glass window 11(14) 20 (21) 6 (7) 6 (7) 76 (70) 62 (62) 31 (29) 14 (15) - 6 (5) -	a. 20°C	4 (5)	9 (8)		
d. 50°C e. 80°C 2. Which makes its own light? a. a burning fire b. a red reflector on a bike c. a glass window 6 (7) 6 (7) 62 (62) 31 (29) - 14 (15) - 6 (5) -	b. 30°C	3 (4)	3 (2)		
e. 80°C 76 (70) 62 (62) 2. Which makes its own light? a. a burning fire 31 (29) - b. a red reflector on a bike c. a glass window 6 (5) -	c. 40°C ✓	11(14)	20 (21)		
2. Which makes its own light? a. a burning fire b. a red reflector on a bike c. a glass window 31 (29) 14 (15) 6 (5)	d. 50°C	6 (7)	6 (7)		
a. a burning fire b. a red reflector on a bike c. a glass window 31 (29) 14 (15) 6 (5)	e. 80°C	76 (70)	62 (62)		
b. a red reflector on a bike c. a glass window 14 (15) 6 (5)	2. Which makes its own light?				
c. a glass window 6 (5)	a. a burning fire	31 (29)	-		
	b. a red reflector on a bike	14 (15)	_		
d. the moon 49 (51)	c. a glass window	6 (5)	_		
2 (2)	d. the moon	49 (51)	_		

3. Blowing or fanning can make a	% resp 1999 ('95) year 4	
wood fire burn hotter because it	•	•
a. makes the wood hot enough to burn.	21 (18)	3 (4)
b. adds more oxygen needed for burning.	39 (38)	80 (80)
c. gets rid of the smoke more quickly.	12 (10)	5 (3)
d. provides the energy to keep the fire going.	28 (34)	12 (13)

Commentary:

For reasons of economy, a material world question (question 3) has been included here. Results for 1995 students and 1999 students are almost identical. The results for question one are quite remarkable, suggesting that students responded without much thought. Other evidence (see page 30) indicates that they do not really believe warm water mixes with quite hot water to produce very hot water. The responses to question two are also disturbing.