S2 Home Economics Practice Paper 1 | Food energy, meal costs, textiles, laundry care, home energy and health indicators

Junior Secondary Home Economics

S2 Home Economics practice paper with answers: food energy and nutrition, meal planning costs, textiles, fabric use, laundry care, appliance energy and health indicators.

1. Food energy and nutrition (18 marks)

Use 4 kcal/g for protein, 4 kcal/g for carbohydrate and 9 kcal/g for fat.

#	Question	Answer and marking notes
1	(a) A breakfast contains 10 g of protein, 45 g of carbohydrate and 8 g of fat. Find its total energy in kcal.	Answer: Total energy = 10 x 4 + 45 x 4 + 8 x 9 = 40 + 180 + 72 = 292 kcal.
2	(b) If the daily requirement is 2000 kcal, find the percentage of the daily energy supplied by this breakfast (1 decimal place).	Answer: Percentage = 292 / 2000 x 100 = 14.6 per cent.
3	(c) If an extra 200 kcal is eaten daily with no change in activity, and 7700 kcal equals 1 kg of fat, find the theoretical weight gain after 30 days in kg (2 decimal places).	Answer: Extra energy = 200 x 30 = 6000 kcal; gain = 6000 / 7700 = 0.78 kg.
4	(d) Compare 250 ml of whole milk (66 kcal per 100 ml) with 40 g of cereal (380 kcal per 100 g). Find the difference in energy and state which has more energy.	Answer: Milk = 250 / 100 x 66 = 165 kcal; cereal = 40 / 100 x 380 = 152 kcal; the difference is 13 kcal and the milk has more energy.

2. Meal planning and food cost (16 marks)

Show working throughout; give money in dollars.

#	Question	Answer and marking notes
5	(a) A family of four budgets 32 dollars per person per meal, two meals a day. Find the weekly (7 day) food budget.	Answer: Budget = 4 x 32 x 2 x 7 = 1792 dollars.
6	(b) The actual spending that week was 1650 dollars. Find the percentage saved against the budget (1 decimal place).	Answer: Saving = (1792 - 1650) / 1792 x 100 = 7.9 per cent.
7	(c) Chicken wings cost 68 dollars per kg and a 10 per cent discount applies to 1.5 kg. Find the amount paid.	Answer: List price = 68 x 1.5 = 102 dollars; paid = 102 x 0.9 = 91.8 dollars.
8	(d) The 1.5 kg of wings makes four portions of 3 wings each, and each wing is about 25 g. Find the mass left in grams.	Answer: Used = 4 x 3 x 25 = 300 g; left = 1500 - 300 = 1200 g.

3. Textile fibres and fabric use (16 marks)

Give areas to 2 decimal places and whole numbers of garments.

#	Question	Answer and marking notes
9	(a) State the fibre class of cotton, wool and polyester (natural plant fibre, natural animal fibre, man-made synthetic fibre).	Answer: Cotton is a natural plant fibre; wool is a natural animal fibre; polyester is a man-made synthetic fibre.
10	(b) A piece of fabric measures 1.2 m by 0.8 m. Find its area in m^2.	Answer: Area = 1.2 x 0.8 = 0.96 m^2.
11	(c) One garment needs 0.75 m^2 of fabric. Find the greatest number of whole garments that can be cut and the area left over.	Answer: 0.96 / 0.75 = 1.28, so 1 garment can be cut with 0.21 m^2 left.
12	(d) The fabric costs 45 dollars per square metre. Find the cost of this piece.	Answer: Cost = 0.96 x 45 = 43.20 dollars.

4. Clothing care and washing labels (16 marks)

Energy is in kWh and electricity costs 1.2 dollars per unit.

#	Question	Answer and marking notes
13	(a) Explain the meaning of a washtub marked 40 and an iron marked with two dots on a care label.	Answer: The washtub 40 means the maximum washing temperature is 40 C; two dots mean ironing at a medium temperature of about 150 C.
14	(b) A washing machine uses 0.35 kWh per load and runs 4 times a week. Find the weekly energy use and electricity cost.	Answer: Energy = 0.35 x 4 = 1.4 kWh; cost = 1.4 x 1.2 = 1.68 dollars.
15	(c) A woollen sweater is labelled hand wash only at 30 C. What happens if it is machine washed at 60 C?	Answer: The wool scales mat together, so the sweater shrinks, loses its shape and becomes hard.
16	(d) A tumble dryer uses 2.5 kWh per load and runs 4 times a week. Find its weekly electricity cost and the extra cost compared with air drying.	Answer: Energy = 2.5 x 4 = 10 kWh; cost = 10 x 1.2 = 12.00 dollars; extra cost = 12.00 - 1.68 = 10.32 dollars.

5. Home appliances and energy (18 marks)

Power is in W, energy in kWh, and electricity costs 1.2 dollars per unit.

#	Question	Answer and marking notes
17	(a) A 1500 W kettle boils water for 4 minutes. Find the energy used in kWh.	Answer: Energy = 1500 / 1000 x 4 / 60 = 0.1 kWh.
18	(b) The kettle is used 90 times a month. Find the monthly energy use and cost.	Answer: Energy = 0.1 x 90 = 9 kWh; cost = 9 x 1.2 = 10.8 dollars.

#	Question	Answer and marking notes
19	(c) A 60 W filament lamp and a 12 W LED lamp each run 5 hours a day. Find the energy saved each day in kWh.	Answer: Saving = (60 - 12) / 1000 x 5 = 0.24 kWh.
20	(d) Eight lamps in a flat are all replaced by that LED lamp. Find the energy and money saved in 365 days.	Answer: Annual saving = 0.24 x 8 x 365 = 700.8 kWh; money saved = 700.8 x 1.2 = 840.96 dollars.

6. Personal hygiene and health indicators (16 marks)

Give the body mass index and water intake to 1 decimal place.

#	Question	Answer and marking notes
21	(a) A student is 1.6 m tall and weighs 51.2 kg. Find the body mass index to 1 decimal place.	Answer: BMI = 51.2 / (1.6 x 1.6) = 20.0.
22	(b) Under the Asian adult standard, which weight category does that value fall into?	Answer: 18.5 to 22.9 is the normal range, so the student has a normal weight.
23	(c) Daily water intake is advised at 35 ml per kg of body mass. Find the intake in ml and the number of 250 ml cups to 1 decimal place.	Answer: Intake = 35 x 51.2 = 1792 ml, which is 1792 / 250 = 7.2 cups.
24	(d) The student exercises 5 days a week for 30 minutes a day. Find the weekly total and decide whether the 150 minute weekly target is met.	Answer: Weekly total = 5 x 30 = 150 minutes, which meets the 150 minute weekly target.