

SUBJECT: SCIENCE

Contents:

Unit 5. Materials and cycles on Earth

- ✓ 5.1. The structure of the atom (p.152-156)
- ✓ 5.2. Purity (p.157-164)
- ✓ 5.3. Weather and climate (p.165-170)
- ✓ 5.4. Climate and ice ages (p.171-176)
- ✓ 5.5. Atmosphere and climate (p.177-187)

Unit 6. Light

- ✓ 6.1. Reflection (p.190-196)
- ✓ 6.2. Refraction (p.197-203)

Instructions: Students MUST complete the study guide before revision classes.

PART 1. SCIENTIFIC TERMS

NO.	TERMS	UNITS	DEFINITIONS	VIETNAMESE TRANSLATIONS
1	atom	5.1		
2	deflected	5.1		
3	electrical charge	5.1		
4	electron	5.1		
5	electrostatic attraction	5.1		
6	neutron	5.1		
7	nucleus	5.1		
8	proton	5.1		
9	sub-atomic particle	5.1		
10	carat	5.2		
11	suggest	5.2		
12	translucent	5.2		

13	atmosphere	5.3		
14	climate	5.3		
15	climatology	5.3		
16	humidity	5.3		
17	meteorology	5.3		
18	statistics	5.3		
19	visibility	5.3		
20	weather	5.3		
21	boulder	5.4		
22	cycle	5.4		
23	glacial period	5.4		
24	glacier	5.4		
25	ice age	5.4		
26	interglacial period	5.4		
27	peat bog	5.4		
28	bioplastics	5.5		
29	deforestation	5.5		
30	emission	5.5		
31	fossil fuel	5.5		

32	global warming	5.5		
33	greenhouse effect	5.5		
34	locked up	5.5		
35	photosynthesis	5.5		
36	recycled	5.5		
37	renewable resource	5.5		
38	angle of incidence	6.1		
39	angle of reflection	6.1		
40	incident ray	6.1		
41	law of reflection	6.1		
42	normal	6.1		
43	perpendicular	6.1		
44	plane mirror	6.1		
45	protractor	6.1		
46	ray diagram	6.1		
47	ray	6.1		
48	reflection	6.1		
49	set square	6.1		
50	angle of refraction	6.2		

51	away from the normal	6.2		
52	bent	6.2		
53	distorted	6.2		
54	lens	6.2		
55	medium	6.2		
56	refraction	6.2		
57	towards the normal	6.2		

PART 2. EXERCISES

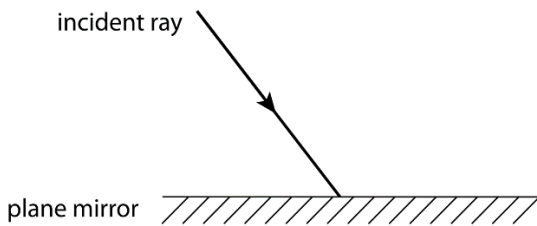
Exercise 1. Draw ray diagrams for reflection and refraction.

For each diagram, label

- the normal
- the angle of incidence (i)
- the angle of reflection (r)
- the reflected ray/ the refracted ray.

Note: For the refraction diagrams, you **DO NOT** need to measure the angles.

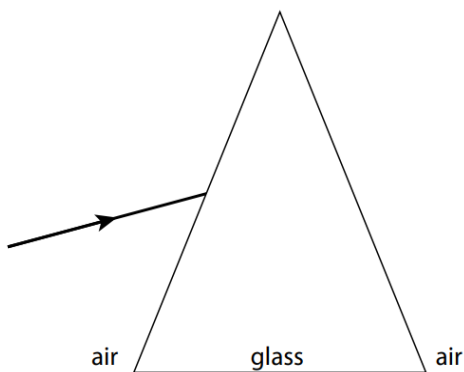
1



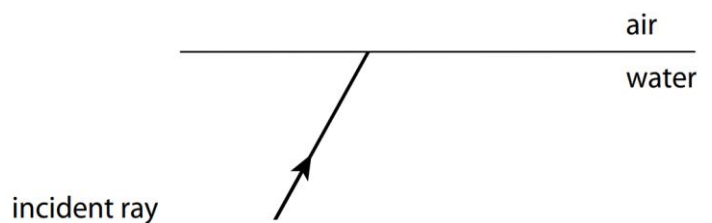
2



3



4



Exercise 2. Solve the following problems and show your calculation steps clearly. Give your answers correct to one decimal place.

Formulae:

1) If a silver object is marked (n), the percentage of silver that it contains is calculated using the formula

$$\frac{n}{1000} \times 100\%$$

2) A pure gold object is 24 carats. So, if a gold object is marked (n) carat, its purity percentage is calculated

using the formula $\frac{n}{24} \times 100\%$

3) If an object moves at a constant speed (v) for a duration of time (t), the distance (d) it travels is calculated using the formula $d = v.t$

1. Calculate the percentage of silver in a bracelet marked 925.

2. Calculate the percentage of gold in 14 carat gold.

3. A jewellery store claims that a necklace is made of 24-carat gold, but it is found to contain 4 parts of silver. Calculate the actual purity percentage of the gold in the necklace.

4. The diameter of the asteroid Vesta is $\frac{1}{10}$ of the diameter of the planet Mercury. Mercury has a diameter of 5,000km. Calculate the diameter of Vesta.

5. Jupiter is three times the size of its moon, Ganymede. Jupiter has a diameter of 139,822 km. Calculate the diameter of Ganymede.

6. The average distance between Earth and Mars is about 225 million kilometres. How many minutes would it take for you to travel from Earth to Mars at the speed of light (300,000 km/s)?
