Key stage 2

Clean Air Schools

Student workbook

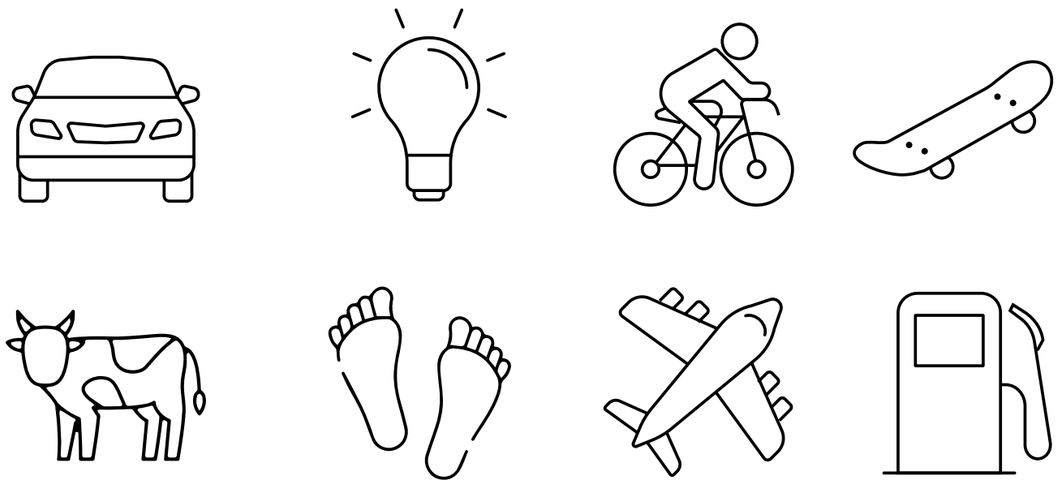
OURGREENCITY
SOUTHAMPTON

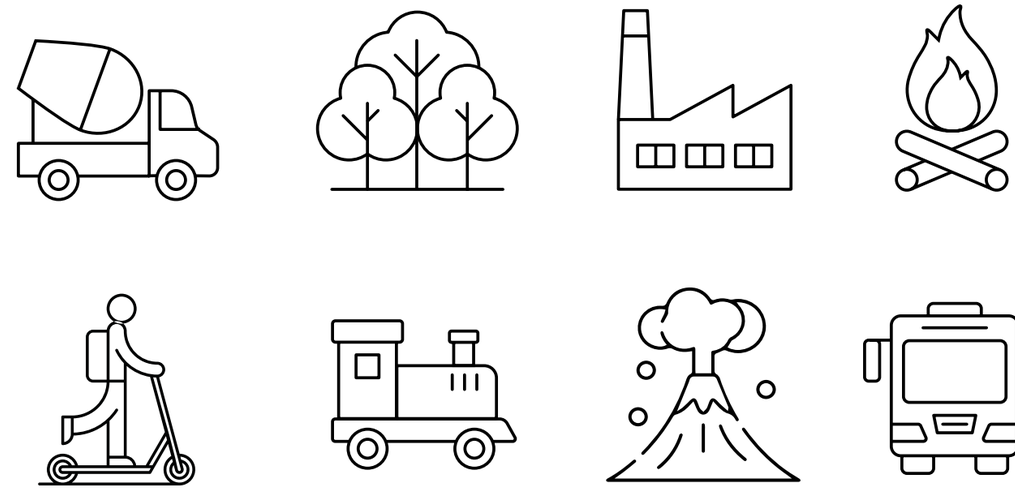
SOUTHAMPTON
CITY COUNCIL

Lesson 1

How is air pollution caused?

Colour in the pictures (**RED** – bad for the air) (**GREEN** – good for the air)





Where does most air pollution come from?

What types of pollution are there at school?

Draw or write how you can make the air quality better?

How can the school improve air quality?

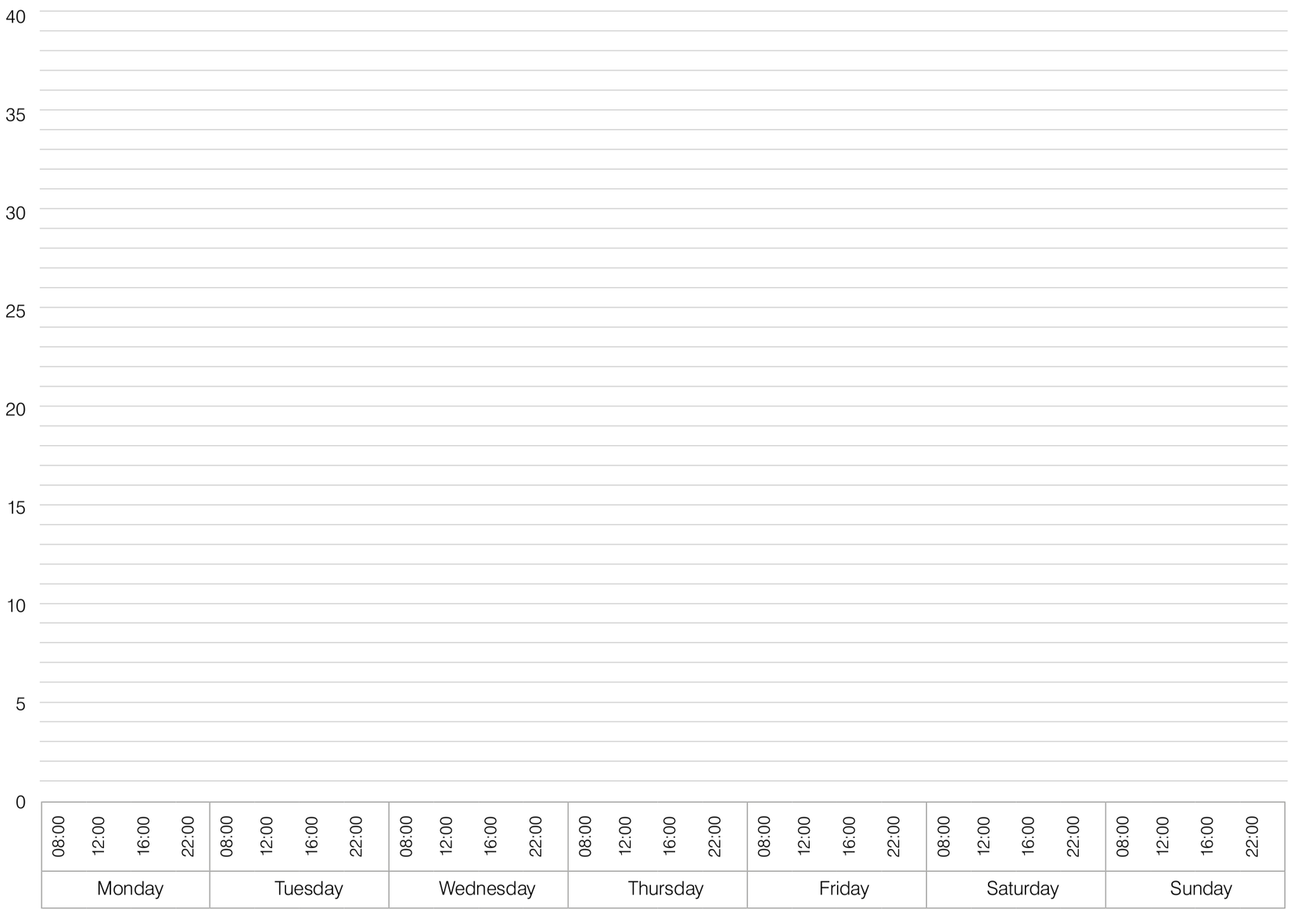
Draw a graph to display the data:

Using the graph below create a bar graph with labels and showing what times the high and low pollution levels are.

Years 5 & 6: The graph shows Monday to Friday on a school week, include a prediction for the weekend (no school).

NO_2 µg/m³	Monday	Tuesday	Wednesday	Thursday
08:00 am	38	30	35	30
12:00 pm	26	13	22	24
16:00 pm	39	26	27	49
22:00 pm	20	27	24	48

NO_2 µg/m³	Friday	Saturday	Sunday
08:00 am	43		
12:00 pm	28		
16:00 pm	33		
22:00 pm	32		



Lichen

What is lichen?

Lichens are plants and they will grow on rocks, trees and roofs, where other organisms cannot. Lichens are very sensitive to air pollution and are good indicators of air quality. They are sometimes used to look at the effects of pollution in towns and around cities like Southampton. .

Types of lichen:

Lichen can show us how polluted the air around us is. There are lots of different types of lichen – they come in all sorts of shapes, sizes, and colours – and different types of lichen like different types of air!

- Nitrogen-sensitive lichens only live in clean air
- Nitrogen-loving lichens can live in dirty air
- Some lichens are not affected by air quality and can live anywhere
- No lichens says the air is heavily polluted

Lichens on the trunks of trees have often been there for a lot longer and lichen on young trees or twigs may support lichen that's grown in the recent years. Do trunks or twigs have more pollution-sensitive lichen?

	How much did you see?	How many and which trees had this lichen?
 Green and bushy lichens need really clean air		

	How much did you see?	How many and which trees had this lichen?
 Grey and leafy lichens can survive with a small amount of air pollution		
 Orange and crusty lichens can survive in more polluted air		

Draw and annotate a map of the tree locations at school:

Which type of lichen did you see the most?

☐ **Green** ☐ **Grey** ☐ **Orange**

Was there more nitrogen sensitive Lichen (orange) on trunks or twigs of trees?

☐ **Trunks** of trees ☐ **Twigs** of trees

What does this mean?

What does this say about the air near the school?

What can you do to improve the air near the school?

Word search

Circle the words you can find from the list below.

p d n k k r a l s y t l q l t p w b d n c j f j p
z a u o e l h l r z k k x m b p f y c i w v u a p
f g r s i d l i n g l r g v b s d e f y g w m h a
c d e t t s v a d g e w r q t y h f c n c m e l p
n h a r i t u i c v o i u h y k a b v f s l s j c
f g e r v c o f h l m u i b g r l u n g s s i r t
f l e r v x u b f s r e w j t h k l p o u b s n n
r s w e i x y l m i p y z b d r e n b e w n k j g
b g h d y u i d a f d s e v g h y a t x o b n f j
f r e e v s g j t t i o p x v k s l l i i r u a o
b r e f t h d s a e e y u b n j i m s t d n t l p
g h o t y g v s r v b s m n u t y s o l h i u i q
w a j k i n g e g h d e t y b c i l m k n a b q i
t r f d i n h g p l f v z e w m q m v e e v e y j
d e a w c p d c f s h g b b e e y k l o p g t r e
e c x p s h j k r t y u b f s d a s c c e r v s t
l k h o p g h y a q w m n x z g l i z n b u i o j
l a m f r e w d g v h j u y n v x k n o i l f a q
l t p v q g a s f t e w v h g o j e h r u n y t b
a v g y d o p s d e f t m n t l g o i y t x z s a
b g h d y u i d a f d s e v g o y a t x o v n f j
p d n k k r a l s y t l q l r p w b d n c j f j p
n h a r i t u i c v o i u t y k a b v f s l s j c
r s w e i x y l m i p y i b d r e n b e w n k j g
d w a l k i n g g t h n e w v p s y b n g d f y i

Words to find:

Atmosphere
Cycling
Diffusion
Dioxide
Dust
Emissions
Fumes
Gas
Health
Idling
Lungs
Nitrogen
Particulates
Pollution
Run
School
Smoke
Toxic
Traffic
Tube
Walking

Produced by Amber Titchener
Sustainable Schools Engagement Officer

https://soton.cc/schoolscleanair