

Module 11

Asthma – Lesson 1: What is asthma?



Learning Outcomes

Pupils will:

- understand what asthma is and how it affects the body;
- identify common asthma triggers;
- recognise the symptoms of an asthma attack; and
- learn the importance of asthma management.



Resources

- PowerPoint presentation which includes quiz questions
- Resources 1 and 2 trigger detective games cards (1 set per group)
- straws
- one stopwatch per group
- Resource 3 worksheet (lower ability)
- Resource 4 worksheet (higher ability)
- individual video clips (websites)



Teaching Notes

Introduction (5 minutes)

PowerPoint presentation multiple choice **quiz**. What do you already know about asthma? Pupils can answer on whiteboards. Class discussion on the answers and PowerPoint to clarify what asthma is.

Development

- **The lungs and gas exchange (10 minutes)**

Use the PowerPoint presentation to explain the structure of the lungs. Introduce or revise the different parts, including trachea, bronchi, bronchioles and alveoli.

Key question: How does asthma affect breathing?

Use the diagrams in the presentation to introduce the idea of reduced airways and the three factors that cause narrowing.

- **Straw challenge (10 minutes)**

Explain that the bronchi and bronchioles in the lungs are like straws that carry air into the lungs. When healthy, these airways are wide and clear like a straight straw allowing easy airflow. Ask your pupils to carry out the Straw Challenge experiment in the presentation.

Emphasise that asthma medications such as inhalers work by **relaxing the tightened muscles** and reducing the swelling, helping to restore normal airflow.

Alternatively refer to a hosepipe analogy: just as water struggles to flow through a pinched or kinked hose, air struggles to flow through inflamed and constricted airways in an asthma attack.

- **Video (4 minutes 45 seconds)**

Ted Ed video: [How Does Asthma Work?](#) available on YouTube explains what happens in an asthma attack, what causes an asthma attack and how to use an inhaler.

OR

[What is Asthma? The Pathophysiology of Asthma](#) available on YouTube is animation explaining how asthma is caused by tightening muscles, inflammation and mucus, leading on to how inhalers work.

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- **Worksheet (10 minutes)**

Use Resource Sheet 3 or 4 to help pupils identify and label parts of the respiratory system. Encourage them to use colours to show how asthma affects normal breathing by altering the airways. Resource Sheet 3 uses a word bank prompt and cloze procedure as opposed to extended writing.

- **Triggers (10 minutes)**

Use key questions to introduce the idea of triggers. What is the effect of triggers? Encourage answers in terms of narrowing, inflammation and mucus in airways. Have a class discussion of types of triggers. What triggers would you find outside? What triggers are in school?

- **Game: Trigger detective (5 minutes)**

Print out trigger detective cards from Resource 1 and 2 and the Asthma Trigger and Not Asthma Trigger labels.

Instructions:

- Pupils place Asthma Trigger and Not a Trigger cards on each side of desk.
- Shuffle the cards and distribute them evenly between your pupils.
- Ask your pupils, one by one, to read their card aloud and decide whether it belongs under label Asthma Trigger or Not Asthma Trigger. Encourage them to explain their reasoning.
- Award points for correct answers.

Plenary (5 minutes)

Depending on time, use one of these activities:

Exit ticket

Ask each pupil to write a sticky note for one of these prompts:

- One new thing I learned about asthma today is ...
- Something I found interesting about asthma triggers is ...
- One question I still have about asthma is ...

True False

Ask your pupils to use whiteboards or different sides of the classroom to show whether each statement is true or false.

Read out these statements:

1. Inflammation in the airways makes them narrower. (**True**)
2. Asthma is a disease that only affects children. (**False**)
3. During an asthma attack, the airways become dry. (**False**)
4. Mucus production increases during an asthma attack. (**True**)
5. Exercise can never be a trigger for asthma. (**False**)
6. Inhalers help reduce inflammation and open the airways. (**True**)
7. Dust mites are a common trigger for asthma. (**True**)
8. Asthma symptoms are the same for everyone. (**False**)
9. Tightened muscles around the airways contribute to asthma attacks. (**True**)
10. Cold air can trigger asthma symptoms in some people. (**True**)
11. Asthma can be completely cured with medication. (**False**)
12. Allergies are unrelated to asthma triggers. (**False**)
13. Asthma attacks can happen suddenly without warning. (**True**)
14. Breathing exercises can help some people manage asthma symptoms. (**True**)

Display and reflect on learning intentions.

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Resource Sheet 1: Asthma Triggers

Asthma Triggers	
Running in cold air	Playing with a pet that sheds fur
Walking past someone who is smoking a cigarette	Breathing in pollen on a windy day
Using strong smelling cleaning products	Visiting a dusty attic
Sitting near a campfire or BBQ	Catching a cold
Exercising intensely without warming up	Spraying perfume in a small room
Being in a room with mould on the walls	Eating food you're allergic to, for example peanuts
Sleeping on a pillow filled with feathers (if allergic)	Experiencing high levels of stress during an exam
Visiting an area with high levels of air pollution	



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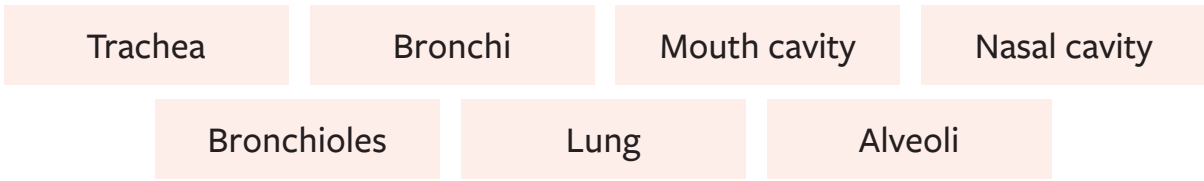
Resource Sheet 2: Not Asthma Triggers

Not Asthma Triggers	
Drinking cold water	Reading a book indoors
Eating a healthy snack, for example an apple	Playing video games
Sitting in a clean, air-conditioned room	Taking a warm bath
Watching a film in a cinema	Walking outside on a clear, cool day
Talking to a friend on the phone	Taking prescribed asthma medication
Sleeping in a clean, allergen-free room	Relaxing with deep breathing exercises
Doing light stretching or yoga indoors	Washing your hands after playing outside
Drawing a picture with coloured pencils	

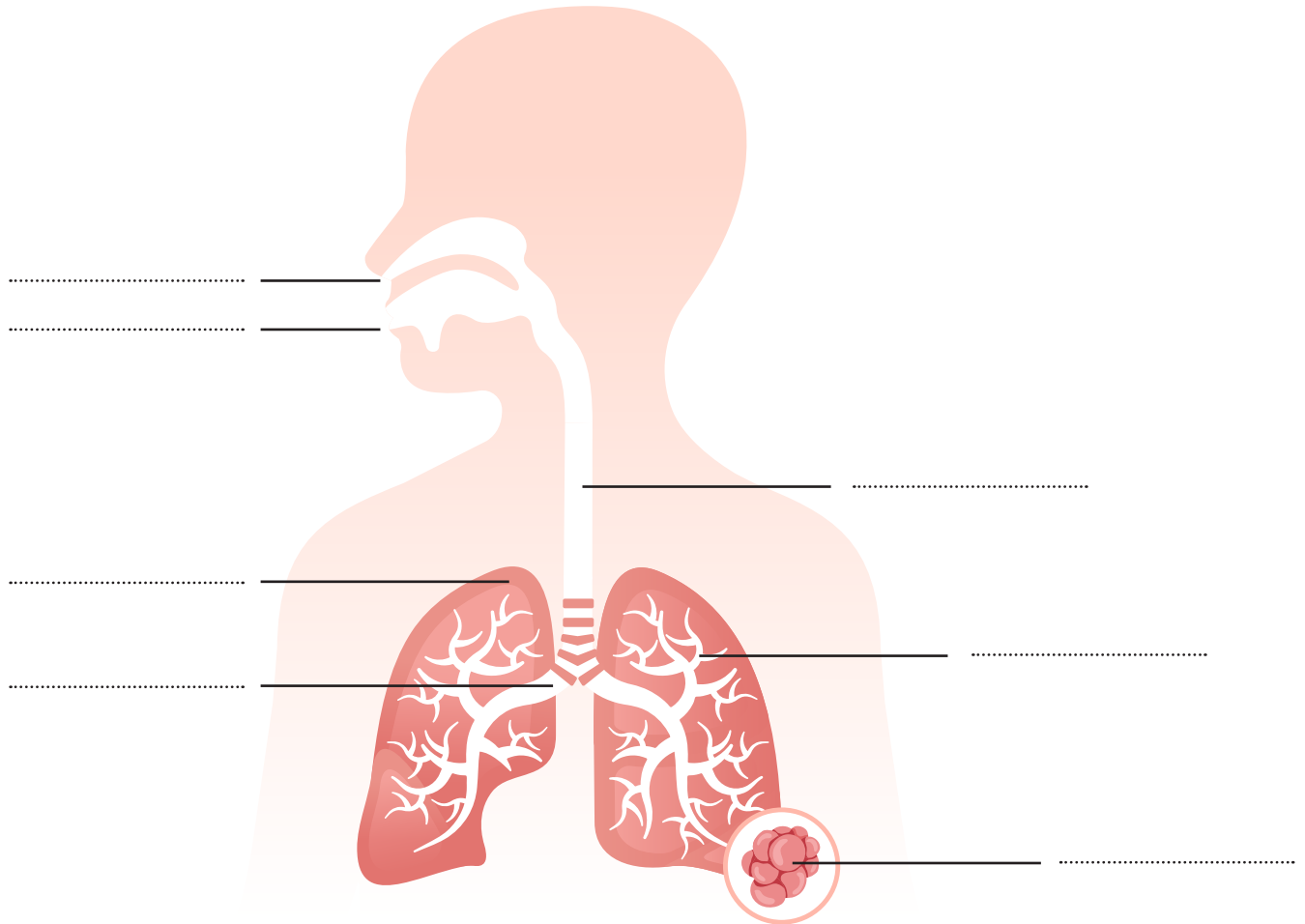


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Resource Sheet 3: What happens to our airways during an asthma attack?



1. Use the words from the word bank above to complete the diagram.



2. Use different colours to highlight:
- **a normal airway** by colouring the bronchi and bronchiole muscles **blue** and the inside open airway **yellow** to show the healthy, unrestricted flow of air; and
 - **what happens during an asthma attack** by colouring over the same parts (bronchi and bronchioles):
 - **red** to show constricted airways due to tightened smooth muscle;
 - **purple** to show swelling of the airway lining; and
 - **green** to show mucus build up inside the airways.

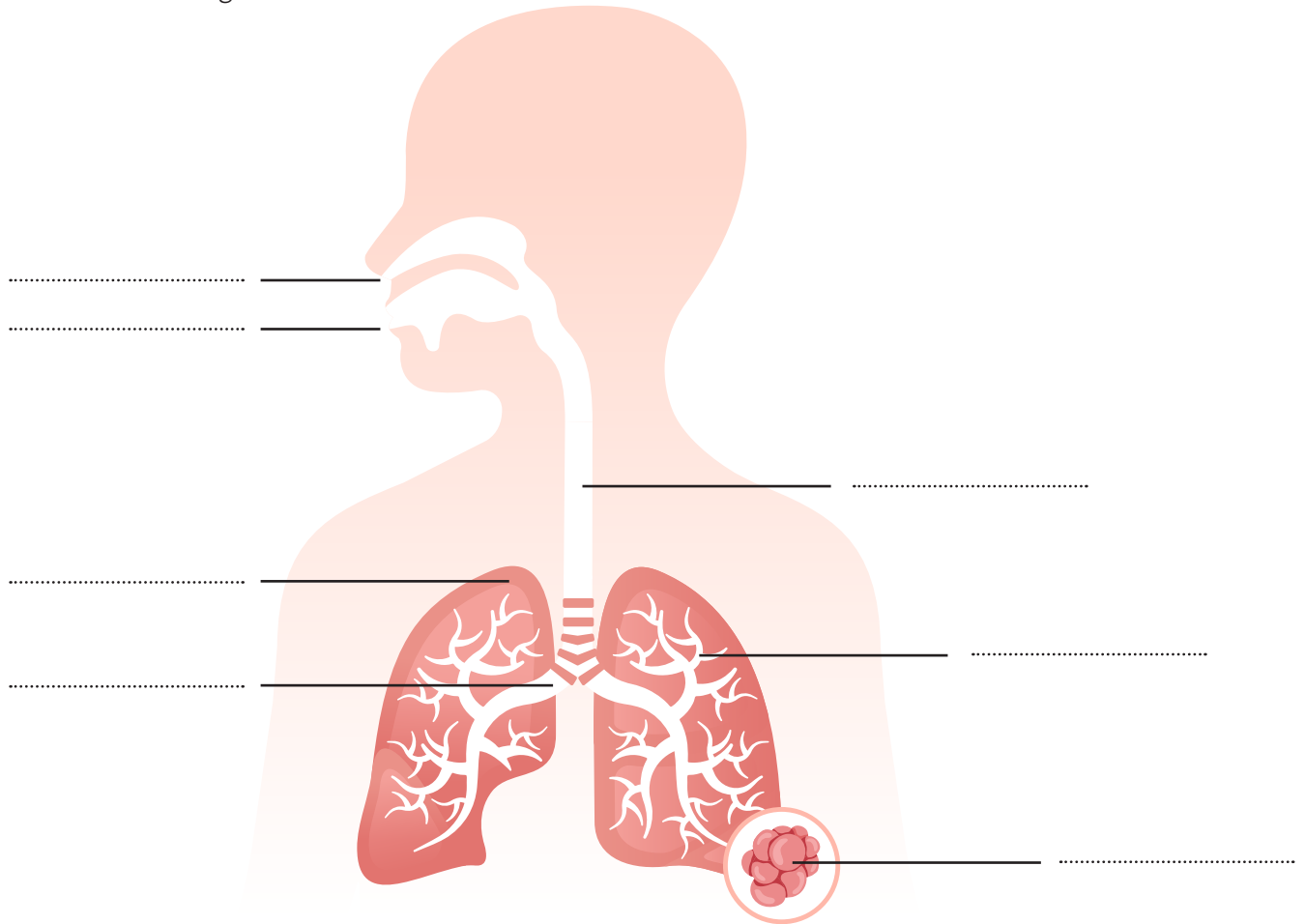
3. Fill in the blanks:

Asthma is a condition that affects the _____. During an asthma attack, the airways become _____ because of _____ and _____ around the muscles. Extra _____ is produced, making it harder to _____.

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Resource Sheet 4: What happens to our airways during an asthma attack?

1. Label the diagram



2. Use different colours to highlight:
 - **a normal airway** by colouring the bronchi and bronchiole muscles **blue** and the inside open airway **yellow** to show the healthy, unrestricted flow of air; and
 - **what happens during an asthma attack** by colouring over the same parts (bronchi and bronchioles):
 - **red** to show constricted airways due to tightened smooth muscle;
 - **purple** to show swelling of the airway lining; and
 - **green** to show mucus build up inside the airways.
3. In your own words, explain why an asthma attack makes breathing difficult. Use the terms inflammation, muscle tightening and mucus.
