

Asthma Can't Stop Me!



Lesson Plans for use with Brenda's Story DVD



Resource Kit for Upper Primary

**ASTHMA
FOUNDATIONS**
AUSTRALIA



Australian Government
Department of Health and Ageing

www.asthmafriendlyschools.org.au

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Learning Activity 1: Experiencing Asthma

Resources and Teacher Preparation:

- DVD OF BRENDA'S STORY (decide if voice on or voice off option is wanted on first reading)
- DVD Slides: Where Does Asthma Occur?; Asthma Airways
- Straws – 2 per student

1) LEARNING OBJECTIVE:

Asthma affects our respiratory system and occurs in the small airways of the lungs

Students listen to / read "Brenda's Story" DVD

Discussion:

What happened to Brenda?

Why do you think this happened to Brenda?

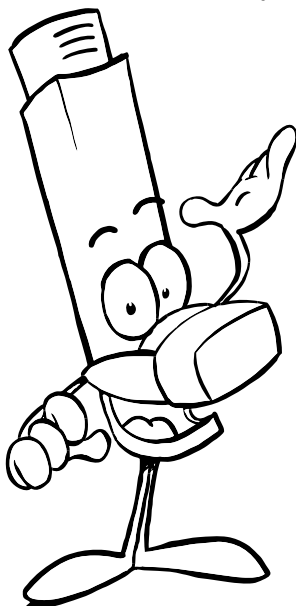
What part of the body does asthma affect?

How might this happen?

Brainstorm with the class the parts of the body that help us breathe. These make up our respiratory system. Establish the pathway through the parts of the respiratory system for breathing in and breathing out.

Show the DVD slide, "Where Does Asthma Occur?" and relate to discussion.

Reinforce that asthma occurs in the small airways of the lungs.



Teachers' Notes

WHERE DOES ASTHMA OCCUR?

Refer to the DVD slide 'Where Does Asthma Occur?'

Asthma occurs in the small airways (called bronchioles) in the lungs. The thickness of the bronchioles is approximately that of a human hair (1/2 mm in diameter). Imagine the significant affect that reducing the passage of air through such small airways could have.

Our Respiratory System:

The pathway of the air we breathe

Breathing in:

1. by tightening the diaphragm muscle (under the lungs) air enters the body through the nose (filtered and warmed) and mouth
2. goes through our largest airway, the trachea (windpipe)
3. branches into left and right bronchi and enters the lungs
4. further branches into smaller bronchi
5. branching continues to smaller airways – bronchioles (blow up diagram)
THIS IS WHERE ASTHMA OCCURS
6. bronchioles to alveoli (air sacs at the end of the airways – round shapes in blow up diagram).

Breathing out:

Relaxing of the diaphragm expels air from the body – reverse of above.

Oxygen in the air enters the bloodstream through the alveoli and is distributed throughout the body to "fuel" our cells.

2) LEARNING OBJECTIVE:

Asthma is caused by restricted airways, which can bring about physical and emotional reactions

Asthma Symptom Simulation

These experiments will provide a first-hand experience of how it feels to not be able to breathe properly.

WARNING: This could cause discomfort for students with asthma and we advise that they should be exempted from the activity, remaining involved as observers. It is important that all students do these activities for no longer than the 10 seconds indicated and know that they can stop if they experience any discomfort (if they do get anxious, sit student down and get them to take slow breaths, counting these out loud. Reassure them that their discomfort will quickly disappear and breathing return to normal)

Provide each student with 2 straws.

Experiment 1: Airway Narrowing

1. Place both straws in mouth side by side, pinch nose and breathe through the straws for 10 seconds
2. Remove one straw from mouth, keep nose pinched and breathe through the remaining straw for 10 seconds
3. Join the 2 straws together (tape or slide one into other), pinch nose and breathe through end to end straws for 10 seconds
4. Discuss the level of difficulty breathing using these various methods (gets progressively more difficult)

Experiment 2:

1. Students cut a straw in half
2. Students jog on the spot for 1 minute
3. Have them place the half straw in their mouth and pinch nose. Breathe through the straw while jogging on the spot for another 10 seconds
4. Discuss how much harder it is to breathe when exercising

Get students to reflect on their reactions during the experiments. Brainstorm to make a list of their reactions. Help students to classify these into two categories,

PHYSICAL: what happened to their bodies (eg faster breathing rate)

EMOTIONAL: how they were affected (eg worried, surprised)

Teachers' Notes

EARLY SYMPTOMS OF ASTHMA can include:

Wheeze; persistent cough; tight chest; shortness of breath; anxious/upset; rapid breathing; difficulty talking; tired/no energy.

Symptoms of a **SEVERE ASTHMA ATTACK** can include:

Blue lips; pale and sweaty; sucking in of skin over chest &/or throat; being able to speak only one or two words at a time.

Discussion:

How might these reactions further affect your breathing?

How would it feel to often not be able to breathe properly?

What do think it's like for people when they have an asthma attack?

Show the DVD slide, "Asthma Airways" pointing out the 3 ways that asthma can narrow the airways (muscles tightening, swelling, mucus production)

Talk about the symptoms of asthma (refer to teachers' notes), pointing out that there are different levels of asthma attacks, with a severe attack being a serious medical emergency.

Teachers' Notes - Asthma Airways

Referring to the Asthma Airways slide on the DVD, These illustrations show the small airways where asthma can occur.

On the left we can see what a normal airway looks like. It has a smooth muscle layer on the outside, a healthy pink lining on the inside, and a large hollow opening in which air that we breathe can move freely in and out of our lungs.

On the right we can see the impacts from asthma that narrow the airways and lead to difficulty with breathing. Students with asthma have sensitive airways that react when they are exposed to certain triggers, for example, cigarette smoke, or house dust, causing changes to occur that make it hard for them to breathe. When one (or more) of these changes occur, the passage of air through the airways is restricted and breathing becomes difficult.

3) LEARNING OBJECTIVE:

By raising awareness of asthma you can help others to better understand this common condition

Students can work in small groups or individually as they wish.

Research asthma using library &/or internet. Look for key messages that you think will help others understand asthma better.

Useful internet sites:

- www.asthmafriendlyschools.org.au
– animation and games in student section; links to your state / territory Asthma Foundation website at the base of each page; the Asthma Friendly Schools program
- www.nationalasthma.com.au
– asthma facts; newsletters; media releases

From their research, students decide on an asthma message for other students in the school. They decide on a suitable presentation format for their message (eg poster, play, poem / short story, song / jingle, infomercial).

Some key asthma messages:

- Over 2 million Australians have asthma
- One in six Australian children have asthma
- The cause of asthma is unknown and there is no cure
- Every week, on average, six Australians die from asthma
- Asthma is one of the most common reasons for hospital admissions in children
- Over 80% of all Australian primary and high schools are involved with the Asthma Friendly Schools program

As much as possible provide opportunities for students to deliver their messages to other students in the school.



Learning Activity 2: Asthma Triggers In The Home, School & Community

Resources and Preparation:

- DVD OF BRENDA'S STORY
- DVD Slide: Exercise Induced Asthma
- Teacher Resource Sheet 1: Asthma Trigger Cards
- Butcher paper / card posters (6)
- Marking pens

1) LEARNING OBJECTIVE:

Asthma is brought on by a range of factors called "triggers"

Watch the Brenda's Story DVD again.

Discussion:

Why did Brenda start to feel breathless?

Explain that exercise is one trigger for asthma.

What other asthma triggers were mentioned in the story? (having a cold; flowers; cigarette smoke)

Do you know of any other asthma triggers?

Using the teacher notes, talk about each asthma trigger.

Which do they think is the most common trigger? (exercise – affects 80% of people with asthma)

2) LEARNING OBJECTIVE:

Exercise is a common asthma trigger. Exercise induced asthma can be controlled and sport and exercise should not be avoided as they are an essential part of healthy living

Discussion:

Explore the following statements using a "for" and "against" approach,

"Physical activity is good for everyone."

"People with asthma should not play sports."

"Physical activity can help someone's asthma."

Show the DVD slide – Exercise Induced Asthma, reinforcing the messages from the class discussion and the teacher notes.

Extension: Students research sporting personalities and athletes who have asthma.

Key Messages:

As exercise and sport are part of healthy living, exercise is one asthma trigger that can be managed and should not be avoided.

3) LEARNING OBJECTIVE:

Most asthma triggers can be avoided or controlled

Copy and cut up Teacher Resource Sheet 1: Asthma Trigger Cards

Provide each student with a trigger card

List the following categories of asthma triggers on the board,

- Infections
- Allergies (from animals)
- Allergies (other than animals)
- Physical activity
- Emotions
- Irritants

Have students form groups by finding others with triggers in their category.

Each group uses the butcher paper / card poster to identify,

- Their category (title)
- Where the triggers can be found – home, school &/or community
- If the triggers can be avoided
 - > Ways to avoid the triggers
 - > Reasons why it is difficult to avoid the triggers
- For triggers that cannot be avoided, how might these be controlled?

Groups present their information to the class.

As a class, collate the information by placing the triggers under the headings HOME, SCHOOL and COMMUNITY on the board (lots of triggers will fit in more than one).

Discussion:

Which triggers can be crossed out because they can be easily avoided? (cross these out as the class responds and agrees)

Which triggers can be controlled by good asthma management? (cross these out as the class responds and agrees)

Examine the remaining triggers and discuss how these would affect someone with asthma.

Teachers' Notes: Asthma Triggers

Although we don't know what causes asthma, we do know that under certain circumstances the airways react and asthma symptoms develop. We refer to the stimuli that can lead to asthma as "triggers".

Different people react to different asthma triggers and many people with asthma react to a variety of triggers. Asthma may develop from exposure to one trigger or from a number of triggers simultaneously (e.g. a student with a cold goes into a change room where deodorant has been sprayed). For some people it is difficult to determine what triggers their asthma.

Avoiding or reducing exposure to known asthma triggers for an individual is one form of control, but is not always possible. Asthma medications can reduce the likelihood of asthma developing.

Colds and Flu: The most common trigger, particularly for children. When a student with asthma has a cold or the flu it is highly probable that they will develop asthma symptoms.

Exercise / activity: A trigger for many people with asthma. Students with asthma should be encouraged to take part in school based exercise and physical activity to contribute to their cardiovascular fitness and their general well-being. People with asthma should be able to participate in almost any sport or exercise. Most individuals with EIA can exercise to their full potential if the condition is properly treated. Many top athletes competing at national and international level have asthma. Scuba diving is the only activity not recommended for people with asthma.

Smoke: As well as active and passive cigarette smoke, woodsmoke from open fires, burn-offs or bushfires can trigger asthma.

Pollens / moulds: Pollens from flowers, grasses and weeds carried in the air are difficult to avoid, particularly in spring and summer. At times, staying indoors is the best measure. The airborne spores of moulds may be encountered in wet areas of houses as well as in mulch, potting soil, compost and leaf litter.

Animals / pets: Animal hair, skin (dead flakes), urine and saliva may trigger asthma. Major source is cats and dogs (sweat and saliva); other animals include guinea pigs, birds, mice & rats, rabbits and horses.

Changes to weather / air temperature:

Changes in air temperature in the order of 10 degrees (either way, cold to hot or hot to cold) can aggravate asthma, e.g. moving from a heated classroom to cold outdoors. Significant shifts in weather can have the same affect. It is the change of temperature of the air entering the lungs and passing through the airways that can trigger asthma.



Dust and dust mites: Dust in the air, particularly on hot, dry and windy days, and household dust that may become airborne from "dusting", sweeping or vacuuming can bring on asthma. Dust mites are microscopic creatures that are a common asthma trigger. Dust mites tend to be prevalent in carpets and bedding, liking moist conditions and feeding on shed skin. Stuffed toys can be a source of dust mites.

Deodorants / perfumes: Personal hygiene products can be a trigger for asthma, including perfumes, after-shaves, hair sprays and deodorant sprays. Some schools have banned the use of anti-perspirant deodorant sprays, even in sports change rooms.

Chemicals: Certain strong smelling household chemicals can trigger asthma, including paints, adhesives, ammonia and bleach. Strong smelling chemicals used in the classroom, e.g. glue, can trigger asthma – it is worthwhile to consider ventilation options that may help overcome this.

Foods / additives: Fairly rare and usually affects very young children, but reactions can be extreme and even life-threatening. Triggers can be peanuts, shell fish, dried fruits (sulphur dioxide), mono sodium glutamate (MSG) and yellow food colouring (Tartrazine 102).

Certain medications: Medications known to trigger asthma include aspirin, anti-inflammatory (non-steroidal, e.g. ibuprofen) and beta blockers (used for heart conditions and high blood pressure). A person with asthma should always ensure that the Doctor or pharmacist is made aware of their asthma when considering a new medication and monitor themselves for any asthma signs.

Emotions: Emotional reactions such as laughter, crying, excitement and stress related can trigger asthma. For students, stress from the pressure of exams is a known factor.

Teachers' Notes: Exercise Induced Asthma

Students with asthma should be encouraged to take part in school based exercise and physical activity to contribute to their cardiovascular fitness and their general well-being.

Exercise induced asthma (EIA) is common and can be more of a problem when other asthma triggers are present, e.g. if a student has a cold or flu, on cold days or when high levels of pollen or pollution are present.

Although asthma can develop during exercise, exercise induced asthma is also likely in the period directly following the activity.

Before exercise:

Most students who experience EIA will manage this through the use of a blue reliever puffer (and spacer) prior to the activity and by warming up appropriately.

Teachers should ensure that their procedures for all physical activity allow time for this to occur. Students should take their medication 5-10 minutes before warming up.

Warm ups are appropriate for all students (this can take the focus off a student who is "embarrassed" about any extra requirements to manage their asthma). A cool down at the end of a physical activity session will also help to control EIA.

It is essential that a student with known EIA has their blue reliever puffer (and spacer) easily available near-by when undertaking physical activity.

School staff with students in their care known to have EIA should familiarize themselves with each student's Asthma Action Plan / Student Asthma Records references to EIA.

If there is an asthma attack, instigate the instructions on the Plan / Record. If there is any doubt regarding these instructions or for a first asthma attack, undertake the Asthma First Aid procedure.



During exercise:

When asthma symptoms occur, the student should cease the activity and be taken to an area close by where they can safely receive treatment without interference. It is preferable that they use their own blue reliever puffer (and spacer) but if this is not available, use those from the Asthma Emergency Kit.

If after the first dose of reliever medication and a wait of 4 minutes the student's asthma symptoms have cleared up, they may resume the activity.

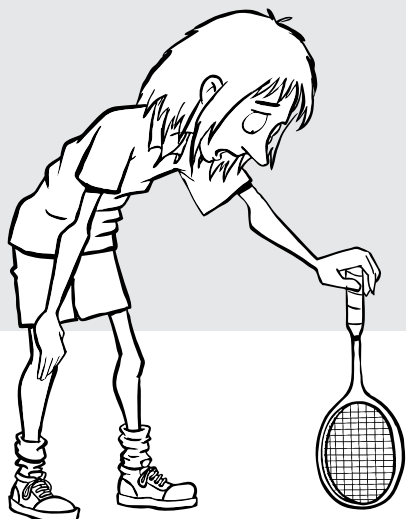
If their asthma does happen to re-occur, re-commence treatment – a **SECOND OCCURRENCE** is the signal that **THE STUDENT SHOULD CEASE THE ACTIVITY AND NOT RETURN TO IT UNDER ANY CIRCUMSTANCES.**

After exercise:

After exercise can also be a critical time for EIA so continue to be observant of students known to have EIA. Generally it is in the first 5-10 minutes after finishing the activity when EIA is most likely, but some people can have an EIA reaction up to several hours after exercise.

Always:

Remember to inform a student's parents / carers of any asthma incident. If the blue reliever puffer (and spacer) in the Asthma Emergency Kit is used, ensure this is recorded and that the used components are cleaned.



Learning Activity 3: Asthma First Aid Decisions

Resources and Teacher Preparation:

- DVD OF BRENDA'S STORY
- DVD Slides: Asthma First Aid Poster (&/or copy of poster in school or download from the Asthma Friendly Schools website); Exercise Induced Asthma; Asthma Reliever Medication; Spacers
- Asthma blue reliever puffer (ventolin) and spacer (from Asthma Emergency Kit or similar)

1) LEARNING OBJECTIVE:

There is an asthma first aid plan for treating an asthma attack

Either watch the Brenda's Story DVD again or revisit the story through class discussion.

How did Maria and Jack know when Brenda needed help?

What did Brenda's friends do?

What did Mr Mitchell do?

What did Mr Mitchell use?

What is first aid?

Display either the DVD Slide – Asthma First Aid Poster or use an Asthma Friendly Schools asthma first aid poster to refer to. With a blue reliever puffer and a spacer, go through the asthma first aid plan for someone having an asthma attack with the class.

Have two volunteers from the class act out the procedure (involve a school nurse or other health professional if at all possible). Repeat with different volunteers if necessary.

Teachers' notes:

STEP 2 OF ASTHMA FIRST AID PROCEDURE in more detail

- Shake the blue reliever puffer and remove cap
- Insert puffer into spacer; ensure student places mouth over spacer mouthpiece and gets a good seal
- Press down once on the puffer then have the student breathe in and out 4 times
- Repeat so the student receives 4 separate puffs, taking 4 breaths after each puff

This is one cycle of the first aid response.

Discussion:

What do you think the medication does? (opens the small airways)

What colour is the asthma reliever medication for use in an emergency? (always refer to the emergency puffer as a "blue reliever puffer" – these are always blue or blue-grey in colour)

When should blue reliever medication be used? (in an emergency, when someone with asthma has symptoms or before sport / exercise)

Show the DVD slide – Asthma Reliever Medication.

Why do we use a spacer? (makes it easier; helps more medication to get to the small airways)

Show the DVD slide – Spacers.

Where does our school store its Asthma Emergency Kits?

Is our school part of the Asthma Friendly Schools program? How do we know this? (window sticker in office entrance; certificate in front office; articles in the school newsletter; check school's status on AFS website)

KEY MESSAGES:

Blue / grey puffers contain reliever medication for asthma emergency use.

Spacers help more asthma medication get into the small airways in the lungs.

An "Asthma Friendly" school is well prepared for managing an asthma emergency.



Teachers' Notes:

RELIEVER MEDICATIONS come in puffer form and are blue or grey in colour (generally referred to as "blue reliever")

Blue reliever medication is what students with asthma will have with them for use when experiencing symptoms and is also kept in Asthma Emergency Kits. Reliever medication works quickly to relax the muscles around the airways, opening these up so breathing can return to normal. Treating an asthma attack at the first sign of symptoms with a blue reliever puffer and spacer may prevent a more serious asthma attack from occurring.

A blue reliever puffer and spacer should be available at all times either through the student carrying their own, the teacher having this easily available if holding for a younger or less able student, or through quick access to an Asthma Emergency Kit (these may be kept in the front office or strategically placed throughout the school).

It is the responsibility of parents / carers to ensure that their child has their asthma medication at school and the responsibility of schools to have emergency asthma medication available for situations where a student may not have their medication with them or if a child experiences their first asthma attack.

Whenever a student develops asthma symptoms at school, they should be encouraged to use their blue reliever medication immediately – time is critical.

Other types of asthma medications are NOT SUITABLE for use in an emergency (a Bricanyl Turbuhaler can be used for asthma first aid).

A blue reliever puffer used with a spacer device is the most efficient method of relieving asthma symptoms in an emergency. Use a puffer alone if a spacer is not available.

Using a spacer with an asthma puffer (for both reliever and preventer medications) is significantly more effective than a puffer on its own. The medication is delivered efficiently into the small airways in the lungs where it is needed, the result being over 3 times more effective than a puffer on its own.

2) LEARNING OBJECTIVE

Through asthma role plays you can reinforce the learning about what to do in an asthma emergency

Have the class form groups of three or four. Each student takes a role as either,

- Someone with asthma
- A friend of the person with asthma (1 or 2)
- Someone to get help from when someone has asthma

Groups create scenarios where the Asthma First Aid Plan needs to be used. Have them consider,

- Where they are
- What is the trigger
- The symptoms the person with asthma will have
- What actions they could take to assist the person with asthma

Each group presents their scenario to the class.

Follow up with questions such as,

Was the Asthma First Aid treatment managed well?

Did someone stay with the person with asthma throughout?

Did the person with asthma get blue reliever medication as quickly as possible?

Could anything have been done differently?

Should an ambulance have been called?

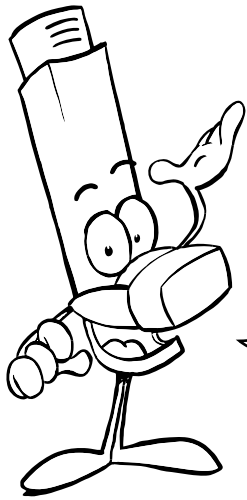
What could have been done beforehand to prevent the asthma attack?

KEY MESSAGES:

Knowing the Asthma First Aid Plan could help someone having an asthma attack (or even save their life).

When people with asthma can't breathe properly they need to get help and use a blue reliever puffer (and a spacer) quickly.

Trigger Cards



Teachers,
duplicate and cut up this
sheet so that each student
has a Trigger Card.

Cigarette smoke	Running	Dogs
Panic	Pollens from flowers	Colds
Paint fumes	Football	Cats
Laughter	Dust	Flu
Dust mites	Netball	Rabbits
Excitement	Mould spores	Viruses
Petrol fumes	Soccer	Birds
Stress	Grasses	Infection (chest)
Spray deodorant	Air pollution	Perfume
Exhaust fumes from cars	Cleaner product fumes	