

# ACTIVITY #3: GET ACQUAINTED – ASTHMA AND ALLERGIES

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**TIME Part A:** 50 minutes

**Part B:** 60 to 80 minutes

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## REQUIRED RESOURCES

### Part A

- Magazines, newspapers, etc. for creating collages
- Poster board for collages, one for each student group
- Computer, internet and projector or SMART Board
- “Get Acquainted – Asthma and Allergies Student Worksheet,” one for each group

### Part B

- “Get Acquainted – Asthma and Allergies Scenarios,” print one copy and cut, one scenario for each group
  - Computer with internet access for student research
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## Objectives

1. To understand the respiratory system and how it functions.
2. To understand asthma and the connection between air quality and health.
3. To understand the symptoms of asthma as well as asthma triggers (especially allergies) and to be prepared to support people with asthma.
4. To understand the benefits of a healthy, active lifestyle and the risks of an inactive lifestyle.

## Curriculum Connections

This activity is designed for Grades 10 to 12 Health. It also covers some Physical Education topics. Curriculum connections are listed by province, grade and subject on the Air Aware website,

[http://www.cleanairchampions.ca/programs/air\\_aware/teacher\\_zone/curriculum\\_connections.php](http://www.cleanairchampions.ca/programs/air_aware/teacher_zone/curriculum_connections.php)

## Activity

### Part A

1. In groups of four, have students create a collage of what healthy, active living means to them. The collage should illustrate the benefits of a healthy, active lifestyle.
2. Ask each group to present their collage, sharing two or three key items from it.
3. Review the respiratory system and its functions using the information from the Air Aware website:  
[http://www.cleanairchampions.ca/programs/air\\_aware/about\\_asthma/the\\_respiratory\\_system.php](http://www.cleanairchampions.ca/programs/air_aware/about_asthma/the_respiratory_system.php)

4. Get the groups of four to divide into pairs. Each pair is to draw and label a diagram of the respiratory system and then teach the other pair in their group about the respiratory system.
5. Distribute the *Get Acquainted — Asthma and Allergies Student Worksheet* to each group and have each pair review their diagram and presentation and make any corrections.
6. Project the online video from the Asthma Society of Canada to illustrate the respiratory system and the effects of asthma on breathing. To access the film, select *Asthma Myths & Facts* at <http://pubmodules.machealth.ca/asthma/management/player.html> and then select *Breathing with Asthma*.

You can show another video on Understanding Asthma found on Youtube.

[http://www.youtube.com/watch?v=S04dci7NTPk&feature=player\\_embedded](http://www.youtube.com/watch?v=S04dci7NTPk&feature=player_embedded)

## Part B

1. Share the following facts about asthma with the students:

*Three million Canadians suffer from asthma.*

*Asthma is the most common chronic respiratory disease of children and young adults.*

*In 2001, a total of 299 Canadian deaths were attributed to asthma. 60% of people with asthma do not have their asthma under control.*

*According to the Canadian Medical Association, at least 21,000 Canadians die prematurely every year due to poor air quality.*

*The cause of asthma is not known, and currently there is no cure.*

Sources: Asthma Society of Canada; Statistics Canada, *Health Reports*, Vol 16. No. 2, March 2005; Canadian Medical Association, *Annual Report*, 2010.

2. Divide the students into small groups and provide one of the *Get Acquainted — Asthma and Allergies Scenarios* to each group. Have students develop solutions for their scenario. They can use the following websites to help them better understand asthma, allergies and anaphylaxis to help develop a solution for their scenarios:

Asthma Society of Canada, Allergies Count Too (ACT): <http://www.asthma.ca/allergies>

Allergy Asthma Information Association: <http://aaia.ca/en/aboutAllergy.htm>

The Lung Association: [http://www.lung.ca/diseases-maladies/asthma-asthme\\_e.php](http://www.lung.ca/diseases-maladies/asthma-asthme_e.php)

3. Ask each group to present their scenario and solution either through a skit, PowerPoint presentation, or other means.
4. After each presentation, have students identify the key actions in each solution. Write the key actions on a white board or flip chart. Place a check mark beside the action items that are repeated in another group presentation. Common actions across the scenarios will become evident.

5. Discuss and post an action plan for your classroom that would help students with asthma and allergies.
6. Submit a summary of what students learned about asthma, allergies and air quality to Air Aware's National Program Coordinator, Angela Melhuish, at [angela@cleanairchampions.ca](mailto:angela@cleanairchampions.ca). You can provide a simple summary and/or a photo of the key actions and/or asthma/allergies action plan from Steps 4 and 5. All classes that submit information on the impact of the program will be entered in a draw to win a Giant Bike! Enter at the website below.

[http://www.cleanairchampions.ca/programs/air\\_aware/enter\\_our\\_giant\\_contest/for\\_schools.php](http://www.cleanairchampions.ca/programs/air_aware/enter_our_giant_contest/for_schools.php)

### **Extension — Making it Relevant**

- Chemicals used to add scents to products can cause serious health problems for some people, especially people with lung disease such as asthma. The chemicals in scents can cause many different reactions. Some people may only be mildly affected while others may have more severe reactions such as headaches, nausea, shortness of breath, or worsened asthma symptoms. Develop a Scent-Free or Scent-Smart School campaign at your school. The *Tips for Parents* in the link below offers helpful suggestions and ideas for developing a scent-free school:  
<http://www.casle.ca/ArticleDetail/tabid/77/smId/413/ArticleID/128/reftab/56/t/Tips-for-Parents-for-Creating-a-Scent-Free-School/Default.aspx>
- One way to help people not affected by asthma to better understand what it feels like to experience asthma is to have them simulate the feeling by breathing through a straw. Working in pairs, one student walks quickly while breathing through a straw while the partner monitors their breathing. Students use a thumbs up to indicate if their breathing remains easy and a thumbs down to indicate if their breathing becomes more difficult. Refer to Grades 10 to 12 Activity 1 for more information on this activity.

### **Extension — Being Active**

1. Divide the students into small groups and challenge each group to develop an asthma and allergy scavenger hunt. The clues should lead the group to items that have a connection to allergies and asthma. For an active scavenger hunt, ask that each clue include instructions for an activity that the group or one individual must do (e.g., jumping jacks, jumping rope, sit-ups, push-ups, etc.) before the group can move onto searching for their next clue. After the groups have designed their scavenger hunts, pair the groups so they can complete each other's scavenger hunts.
2. Refer to the Clean Air Champions website for other quizzes, activities and games:  
[http://www.cleanairchampions.ca/programs/air\\_aware/quizzes\\_activities\\_and\\_games.php](http://www.cleanairchampions.ca/programs/air_aware/quizzes_activities_and_games.php)

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### **TEACHER ANSWER KEY**

Use these pointers when reviewing students' solutions for each scenario.

#### **Scenario 1**

Kelly should book an appointment with her doctor. In the spring, Kelly could take an allergy medication (an anti-histamine) to see if that helps her watery, itchy eyes and sneezing. She should also visit her doctor if her symptoms are still present. Her doctor may prescribe a medication. She may need to see an allergist for skin testing to determine her allergies especially if medication does not sufficiently help her symptoms.

#### **Scenario 2**

John should carry his inhaler with him at all times. He should ensure his basketball coach knows that he has asthma, and work out a plan for his coach to know where he keeps his inhaler or for his coach to hold the inhaler for him. John should make sure that his teachers know he has asthma. John could encourage his teachers to teach about asthma. If his classmates and friends have a better understanding of this condition, John might not feel that he has to hide it.

#### **Scenario 3**

Rachel should not try any of the cafeteria food. It is safest for her to consume food she has brought from home. Rachel's friends should understand that she is at risk of anaphylaxis and learn to recognize signs and symptoms of an allergic reaction, as well as how to use an epinephrine autoinjector. It would be helpful if her friends did not eat the foods that Rachel is allergic to when she is around. However, the main risk for Rachel is actually eating those foods herself.

#### **Scenario 4**

Brandon needs to make sure that he has worked with his doctor to optimize his asthma medication. Brandon should share the AQHI rating with the coach and see if the game can be rescheduled as it will be healthier for both teams, especially for any players with asthma. If the game cannot be rescheduled, Brandon needs to know the effect poor air quality has on his asthma. If it is well controlled, he may choose to play the game even on poor air quality days.

#### **Scenario 5**

Since Adam does not really enjoy team sports, he should explore some different individual sports or fitness activities such as swimming, biking, running, squash, martial arts, tennis, cross-country skiing, or speed skating. Adam could try a few of these sports by signing up for some lessons outside of school time. Once he finds one he likes, he could join a club to become more involved in the activity. Adam also needs to ensure that his medication is optimized so that his asthma is well controlled.

### **Scenario 6**

Jill could wait until after the try-outs to tell her coach that she has asthma, but it is better if she tells her coach right away. If she didn't tell her coach and her asthma symptoms were triggered while playing handball, no one would know what to do or how to help her. The coach should be aware that asthma does not affect an athlete's skill, and he should reassure Jill that she would be selected based on her ability and attitude. If the coach knows that Jill has asthma, he/she can take steps to help Jill control her asthma so that her ability to breathe is not limited. Such steps include providing a warm up before starting exercise and a cool down for at least 10 minutes after exercise. Jill's doctor may also suggest that she use her reliever inhaler 15 minutes before exercising. Good asthma control is very important for Jill's performance.

### **Scenario 7**

Devon should make a point of having a spare inhaler with her for cross-country training and meets. She should make sure she uses her reliever inhaler before she starts her exercise. She could ask her friend Alyssa or her coach to carry a spare inhaler for her when training or competing in races.

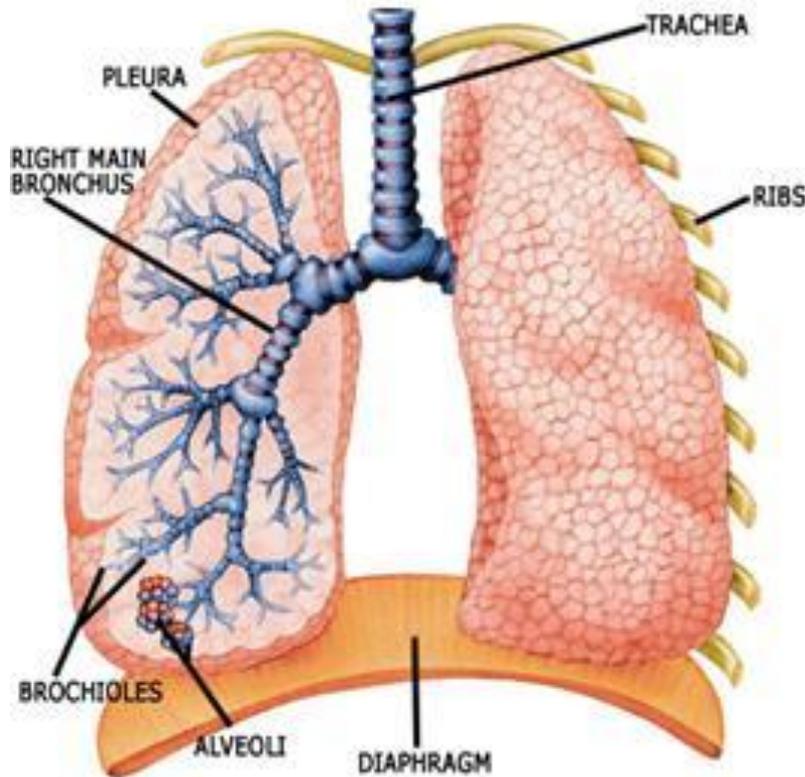
### **Scenario 8**

Ms. Carter should have a conversation with Scott to see what inhaler he is using and ask which one he is using in class. She should ask him questions to see if he realizes that he is using it more frequently and encourage him to discuss this with his parents and his doctor. If Ms. Carter sees that Scott continues to use his inhaler more frequently, she should contact his parents and let them know what she is seeing during school hours.

## ACTIVITY #3: GET ACQUAINTED – ALLERGIES AND ASTHMA

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### STUDENT WORKSHEET Respiratory System



Breathing is the process by which oxygen in the air is brought into the lungs. The blood absorbs the oxygen and carries it to all parts of the body. At the same time, the blood gives up waste matter (carbon dioxide), which is carried out of the lungs with the air breathed out.

When we breathe in (inhale) through our nose and mouth, air travels down our trachea (windpipe) and into our lungs through the left and right bronchi. Each bronchus splits into smaller bronchioles and then leads to small sacs called alveoli.

It is in the alveoli that the oxygen-rich air we have inhaled is absorbed into our blood. In the blood, the oxygen is carried to the heart and is then pumped to the trillions of cells throughout our body. Our cells use the oxygen to make energy and then release carbon dioxide ( $\text{CO}_2$ ), a waste product that is removed from the body as we exhale.

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### **SCENARIOS**

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#### **Scenario 1**

In the spring, Kelly often sneezes, has a runny nose, and red, itchy eyes. She also gets a cough and finds it hard to breathe sometimes. Kelly has found the symptoms annoying but has not given them much thought.

#### **Scenario 2**

John has exercise-induced asthma and really enjoys playing basketball. He has worked with his physician to develop an Asthma Action Plan, and his asthma is very well controlled. He doesn't have asthma symptoms very often. Because he doesn't want other kids at school to know he has asthma, he leaves his inhaler in his locker during school hours.

#### **Scenario 3**

Rachel has asthma and is anaphylaxis to a number of food items such as peanuts and shellfish. She is also anaphylaxis to latex. She carries an epinephrine autoinjector (e.g. EpiPen<sup>®</sup>) and her inhaler with her at all times. Rachel would like to try some of the foods at her school cafeteria, but she knows that the combination of her asthma and allergies would make it extremely risky. She likes to sit with a group of friends at lunchtime, and they all purchase cafeteria food. She knows that if she comes in contact with any of her food allergies, the situation would be life-threatening. She has to be extremely cautious as one mistake could end her life. Rachel has learned this from other examples of children with asthma and anaphylaxis who have lost their lives (e.g., Ontario's Sabrina's Law).

#### **Scenario 4**

Brandon has asthma and he notices that on hot days in the summer his breathing is sometimes affected. He has learned to use the Air Quality and Health Index (AQHI) and has found that the days his breathing is affected are days when the AQHI rating is in the moderate range. He plays soccer during the summer, and on one of his game days, the AQHI level is at 6.

#### **Scenario 5**

Adam has asthma, and his family is very cautious about him taking part in school sports. He doesn't enjoy physical education classes very much as they seem to focus mainly on team sports. Adam's doctor is encouraging him to become more physically active as exercise will help his general health and his asthma.

### **Scenario 6**

Jill is trying out for the school's handball team. She has a mild case of asthma. She doesn't tell the coach because she's afraid she won't make the team. She knows her asthma is mild, and she can usually control it by ensuring she warms-up and cools-down before exercising.

### **Scenario 7**

Devon has exercise-induced asthma. She is on the school's cross-country team and carries her inhaler with her at all times. Her best friend, Alysa, is also on the team. Devon has had to use her inhaler occasionally when the team is training. At one cross-country meet, Devon lost her inhaler during the run.

### **Scenario 8**

Scott's teacher, Ms. Carter, notices that he is using his inhaler more often each day. Ms. Carter's daughter also has asthma, and she knows that this is a sign that Scott's asthma may not be well controlled.