

# AIR BALL

## **Purpose:**

This is an activity that takes any sport with one ball and two goals and transforms it into a battle between opposing sides and their environment. The sport then becomes an opportunity for understanding the relationship between the players (the population) and the ever-changing rules (weather or environmental conditions).

## **Supplies:**

- Related vocabulary cards
- 2 or more balls (not included)
- The corresponding field or court
- Scenarios list (next page)

## **Pre-Activity Discussion:**

Some people are more sensitive to air pollution than others. See if students can name any group of people who might be especially sensitive. These groups include people with respiratory illnesses such as asthma, those with heart disease, as well as children, pregnant women, athletes, and the elderly. Review useful vocabulary using the provided vocabulary cards – volunteers can pick a card to read aloud to the group.

Tell students that they are going to play a game where they explore these sensitive populations, as well as other air quality-related weather phenomena.

## **Directions:**

You can choose the sport your students will like the best, as long as it has one ball and two opposing goals. Soccer and basketball work best. Regardless of what sport your group is playing, a certain set of conditions will be introduced, which will change in-game play and reflect a theoretical real-life scenario. The definition of these scenarios and the conditions they bring into the game are described on the next page.

- Let the students know that on your command, the game will pause and you will change the rules. All students must pause when you say (a whistle works best if you have one available).
- Begin playing the game with normal rules. Let them play for as long or short of an interval that you want. Pause the game and change the scenario using the list on the next page.

## **Post-Activity Discussion:**

- Ask students how the game made them think about air quality. Which scenarios were harder or easier to play through?
- Were the scores higher or lower than when they normally play? Why might they be different?
- What are some ways to protect ourselves while we are active outdoors?
  - If possible, play in the morning and the evening, and avoid rush hour and main streets to help stay away from heavily polluted areas.

# AIR BALL

REAL-LIFE SCENARIO	EXPLANATION	IN-GAME CONDITION
<b>1: INVERSION</b>	A natural phenomenon wherein cool air gets trapped beneath a warmer layer of air, trapping pollution close to the ground where we breathe.	Shift one goal to the middle of the field/court, and use only half of the field
<b>2: NEIGHBOR BURNING IN THE BACKYARD</b>	This action would introduce more particulate matter and/or noxious gases into the immediate area.	Introduce second playing ball, which represents a particle
<b>3: RECENTLY RAINED</b>	During a rain, droplets collect particulates from the air below the clouds, "cleaning" pollution from the air.	Clears out extra ball of "pollution" from previous step
<b>4: AIR QUALITY ACTION DAY</b>	On these days, the air is considered unhealthy for all, so people should avoid outdoor activity.	Each player can only dribble ball for 3 steps after acquiring it
<b>5: SENSITIVE POPULATION</b>	This population, which includes those with lung or heart diseases, the young, and the elderly, as well as pregnant women, are more susceptible to air pollution.	Walk instead of run
<b>6: TAKING YOUNG CHILD OR SIBLING OUT FOR A WALK</b>	Understand that young people are more susceptible to air pollution because their lungs are still forming.	Players couple up and play with linked arms

## SENSITIVE POPULATION:

A group of people who are especially prone to the negative health effects associated with air pollution. These groups can include young people, the elderly, and people with asthma and other lung conditions.



## ASTHMA:

Asthma is a condition that causes breathing problems.

People with asthma may cough, wheeze, or be short of breath. This happens because airways in the lungs get swollen, smaller, and filled with mucus. An inhaler is a common aid.



## AIR QUALITY ACTION DAYS:

These days are announced when the Air Quality Index (AQI) gets into unhealthy ranges. Groups that are sensitive to the pollutant should reduce exposure by reducing prolonged or heavy exertion outdoors. AirNow.gov is one resource to find Action Days and explanations about different cities' alert programs.



## INVERSION:

An inversion is a weather event that traps air pollution, such as smog, close to the ground. An important example in Southwestern Pennsylvania occurred in Donora in 1948, resulting in at least 20 deaths. The Donora smog incident helped inspire national action towards environmental protection and public health.



## PARTICULATE MATTER:

A complex mixture of solid particles and liquid droplets found in the air. This type of air pollutant is caused by myriad sources and can smell like acrid smoke. The smaller the particles, the worse the associated health effects.

## NOXIOUS GASES:

A noxious gas or substance is poisonous or very harmful. Many household products give off noxious fumes.

Smoke from burning wood may include noxious gases. Outdoor recreational fires can become a considerable source of fine-particle air pollution – especially in some metro areas.

## SMOKE & AIR QUALITY:

Smoke forms when wood or other organic matter burns. The smoke from wood burning is made up of a complex mixture of gases and fine particles. Sensitive groups may be more likely to experience symptoms when particles get in their eyes or lungs. Smoke is especially important to be aware of in the case of large wildfires, such as the wildfires in California.

## RAIN & AIR QUALITY:



Rain typically results in less pollution as the droplets collect and disperse particulate matter. Rain can also clear pollutants that can dissolve in water, such as pollen.