



**Alberta
Emerald
Foundation**

Emerald Youth Grants

Study Guides

Calgary Region Airshed Zone



30th Annual Emerald Award Recipient

Air



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About the Alberta Emerald Foundation



We're Alberta's environmental good-news storytellers!

The Alberta Emerald Foundation (AEF) is nonprofit organization that showcases and inspires our province's environmental achievements through the annual Emerald Awards. Through our Sharing Stories Communications Strategy, the incredible work of Emerald recipients is highlighted and celebrated year-round. What began as the Emerald Awards in 1992 has evolved into an ongoing conversation.

The AEF empowers the next generation by providing grants to youth-led and youth-targeted environmental initiatives in our province. The Emerald Educational Engagement Grants Program funds up to 30 groups a year for their dream environmental project inspired by the Emerald Documentary Series, What On EARTH Can We Do? Podcast, and Emerald Speakers Series. After finding inspiration from this content featuring Emerald recipients, submit your pitch to us online. If it's accepted, you will receive \$750, thanks to our sponsor Syncrude Canada Ltd., to make your project a reality.

We encourage you to use this study guide as a resource to help you along in your project's journey. For more information, please visit

www.emerald.foundation.ca

Overview

What they're all about

Mission:

- To monitor, **analyze**, and provide information on **air quality** and develop strategies to manage air quality issues within the Calgary Regional Airshed Zone.

Vision:

- To have air quality that is not harmful to human health or the environment.

Air quality **monitoring** has only been available to large cities with a population of over 30,000 people. However, the cost of the stations are over \$250,000 for set-up and another \$72,000/ year for operating costs. In the Calgary region, only 4 stations have been able to operate. Now with the Portable Air Monitoring Laboratory (PAML) program (2018-2022) and the Purple Air Program, the Calgary Region Airshed Zone (CRAZ) is able to offer air monitoring bringing the PAML to the Bow Valley corridor, High River/Okotoks corridor, Canmore, and Chestermere/Rocky View corridor.

Starting in 2021, CRAZ will install 28 Purple Air Sensors covering the region. The **data** from these air monitoring stations is available in real-time and can help residents make decisions about their health from poor air quality. Purple Air Monitors are low cost sensors that are used to supplement government air data to provide a better understanding of local-scale air pollution. The level of pollution can change quickly and vary within the same neighbourhood, these monitors provide air quality maps for communities to better protect **vulnerable** populations.

The quality of the air is dependent on the rate at which pollutants are emitted into the atmosphere and the ability of the atmosphere to **disperse** these pollutants. The movement and dispersion of air pollutants is controlled by wind, temperature, turbulence and the changes in these elements caused by local topography (mountains and valleys).



Key Terms

Know your lingo



Air quality: the degree to which the air is pollution-free, assessed by measuring a number of indicators of pollution. The “cleaner” the air is, the better the air quality is, and the less pollution is in the air.

Air pollution: when the air is exposed to substances such as carbon monoxide, oxides of nitrogen, ozone, sulphur dioxide, hydrogen sulphide, particulate matter (such as dust and smoke), total hydrocarbons and hydrogen sulphide.

Analyze: to examine or study something in detail to better understand it and/or how it works.

Data: a collection of information gathered through observing, questioning, or measuring something.



Disperse: to drive away in all directions, or break apart and scatter until it has disappeared.

Monitoring: to watch or check something for a special reason. In doing this, you are collecting data that you can analyze later.

Vulnerable: someone or something that is less able to be resistant to hazards, and are perhaps lacking protection.



Conversation Questions

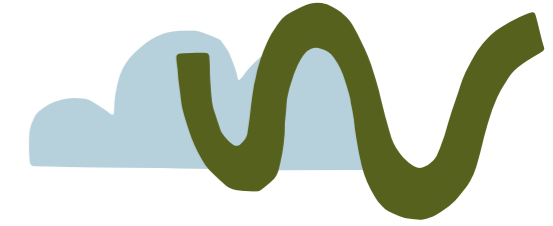
Let's talk about it

- What problem does CRAZ address? How do they address this problem?
- Do you think that the smoke from wildfires we have had in summers impacts the air quality? What does it feel like to breathe smokey air?
- What types of things affect air quality?
- How does air quality affect us? How could air quality affect animals? Do you think it could also affect plants?
- Why might it be difficult for people to tell what the air quality is without monitoring systems?



Continuing Work

Inspiration for your Emerald Youth Grant



- Check the air quality for your airshed region by using this [map](#). If there isn't an airshed monitoring system in place where you live, ask your municipal government to have one installed. You can connect with CRAZ for suggestions on the proper system.
- Ask your community leaders about public transit options that are available, and for them to implement bus or LRT systems to reduce the amount of cars used.
- Consider these suggestions from CRAZ to help improve air quality, and reduce our air pollution impacts.
 - ✚ Conserve Energy. By reducing your demand on the power generating stations you will help reduce the amount of air pollutants emitted.
 - ✚ Consider finding alternative forms of transportation (eg: walking, biking, public transit, car pooling) or plan your outings in order to minimize your overall travel distance. Do not allow your vehicle to idle for long periods (eg: car starters).
 - ✚ Support alternative fuels. Utilizing 'Greenpower', like wind, and solar power will reduce the amount of air pollutants being generated.
 - ✚ Properly insulate your house and body, this way you won't need to use as much energy to stay warm.

Resources

Click to discover

[Alberta Air Quality Map](#)

[CRAZ Website](#)

[CRAZ Classroom Activity](#)

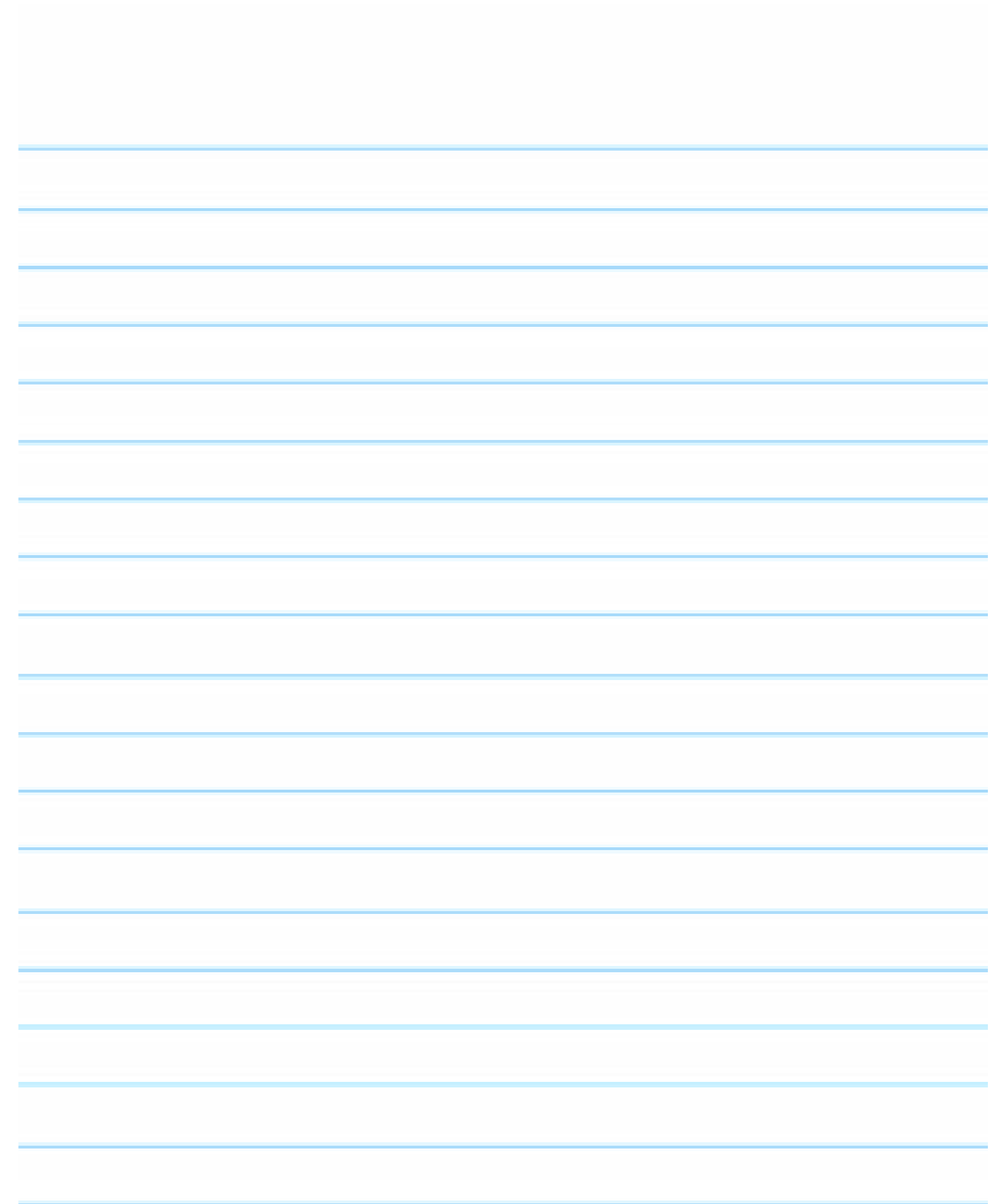
[Air Quality Health Index](#)

[Alberta Wildfire Map](#)

[Britannica Kids](#) (used for Key Terms)

[36 environmental project ideas that you could get funding for!](#)

Notes





Emerald Youth Grants

The AEF would like to thank Syncrude Canada Ltd. for their sponsorship of the Emerald Youth Grants Program. As well, we'd like to thank Hoopla Media for their work on the Emerald Documentary Series.

This study guide was created and written by AEF Summer Student, Katherine Rogers.

[Click to apply for an Emerald Youth Grant!](#)

