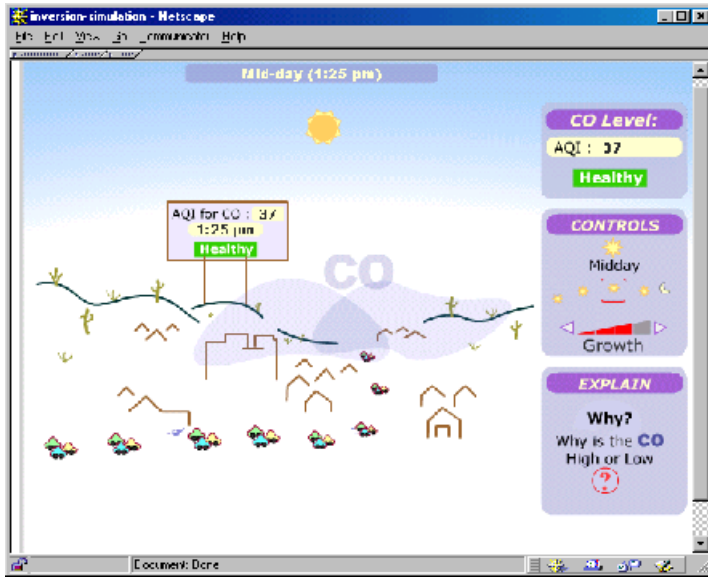


# A Guide to CO-City



## The main Animation

### CONTROLS



Change the time of day.

Change the size of the city.

These can affect the number of cars, the number of buildings, and the amount of CO in the air.



Use the "WHY" button to find out why the CO is high or low.

### Here's why the CO is high or low ...

It could be the size of the city, it could be the time of day.

Those are important factors.

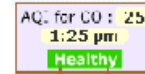
Other factors are:

1. There are more cars on the road at some times of the day.
2. The CO is trapped during some times of the day.
3. The air isn't mixing.

Three ways to know how much pollution is in the air.



The CO Level readout.



The BILLBOARD.

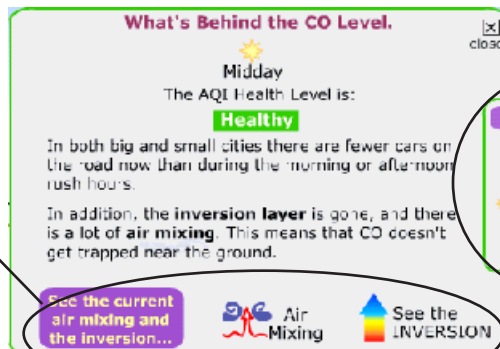


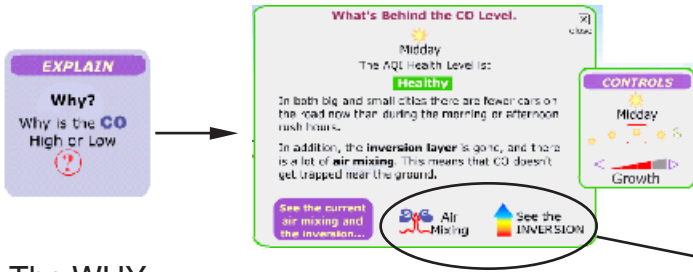
The CO CLOUD will get bigger and darker when there is more

You can change the TIME or GROWTH in the city and the CO LEVEL and the explanation will be updated.

Use the Mixing and Inversion buttons to get details about:

1. What processes lead to mixing of air masses.
2. How the inversion layer forms or disappears.





The WHY button

The window with the answers.

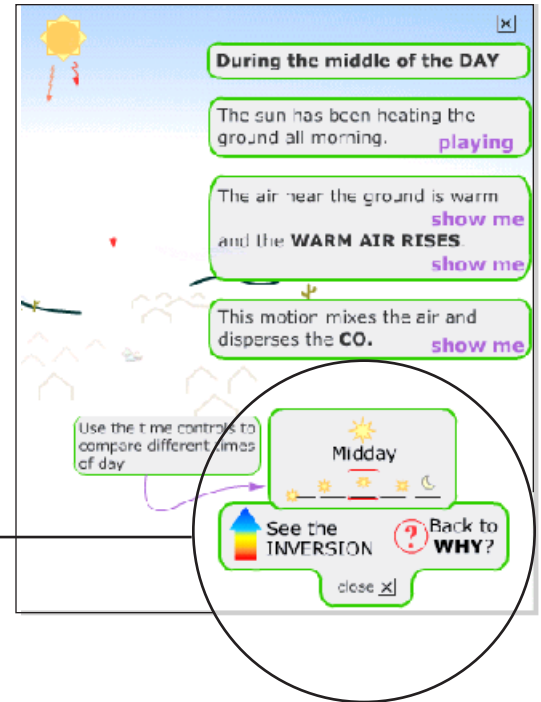
Once you know about the inversion layer and the air mixing. You might want to know:

- How did the inversion layer get there?
- How did it disappear?
- What makes the air mix?

The "Air Mixing" button and the "See the Inversion" button can illuminate these questions.

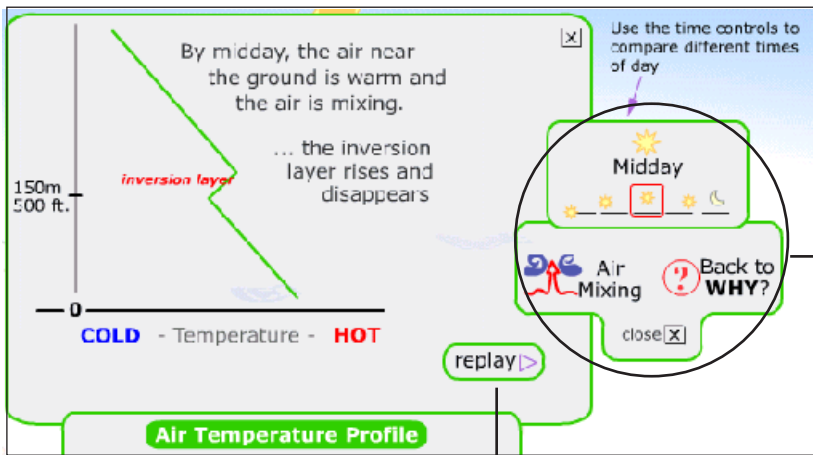
### Air Mixing The Air Mixing screens

- The bubbles explain the steps that lead to mixing or stagnant air.
- Move your mouse over the words "show me" to see how things happen.
- Use the "TIME" controls to see how things look at different times of day.
- Or use the "INVERSION" button to see how the air mixing relates to the state of the inversion layer.
- Or go back to the "WHY" screen to get the big picture.
- Or "CLOSE" this screen to go back to the main CO-City animation.



### See the INVERSION The Inversion screens

This window explains how the inversion layer changes. The graph shows that the air temperature changes as you go higher above the ground.



REPLAY parts of the animation as needed.

- Use the "TIME" controls to see how things look at different times of day.
- Or use the "INVERSION" button to see how the air mixing relates to the state of the inversion layer.
- Or go back to the "WHY" screen to get the big picture.
- Or "CLOSE" this screen to go back to the main CO-City animation.

# Inversion Layer and Pollution Worksheet

Morning Rush Hour

growth

①

②

⑤

④

③

Instructions: Fill out the following information for each of the scenes on the left. The example picture at the bottom shows how to fill in the picture.

- ① If an inversion layer is present, write "**Inversion**" next to ① and draw a horizontal line (as in the example). If there is no inversion layer write "**NONE**".
- ② Next to ② write the AQI value for the time of day and city growth level indicated in the drawing.
- ③ The ground is ... WARM or COLD (write WARM or COLD next to ③)
- ④ Indicate whether the air is circulating or not - if the air is circulating DRAW the circulating air (as in the example), if not then write "NO MIX" next to ④.
- ⑤ Draw a cloud according to the following guidelines.
  - 1-Scale the cloud to represent how much pollution there is (use your AQI value from question #2 - the scene with the most pollution should have the biggest cloud ...).
  - 2-If an inversion layer is present the cloud should be trapped beneath it.

1:30 pm

growth

①

②

⑤

④

③

2:25 am

growth

①

②

⑤

④

③

EXAMPLE

① Inversion Layer

cloud without inversion

or ⑤

② lowest AQI

④

③ HOT

# GRADING GUIDE: Inversion Layer and Pollution Worksheet

Morning Rush Hour

growth

① Inversion Layer

② 82

③ Cold

④ No Mix

⑤

Instructions: Fill out the following information for each of the scenes on the left. The example picture at the bottom shows how to fill in the picture.

- ① If an inversion layer is present, write "**Inversion**" next to ① and draw a horizontal line (as in the example). If there is no inversion layer write "**NONE**".
- ② Next to ② write the AQI value for the time of day and city growth level indicated in the drawing.
- ③ The ground is ... WARM or COLD (write WARM or COLD next to ③)
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- ⑤ Draw a cloud according to the the following guidelines.
  - 1-Scale the cloud to represent how much pollution there is (use your AQI value from question #2 - the scene with the most pollution should have the biggest cloud ...).
  - 2-If an inversion layer is present the cloud should be trapped beneath it.

1:30 pm

growth

① None

② 37

③ Warm

④

⑤

2:25 am

growth

① Inversion Layer

② 97

③ Cold

④ No Mix

⑤

EXAMPLE

① Inversion Layer

② lowest AQI

③ HOT

④

⑤