WHY IT MATTERS:
The Classroom Environment

Indoor Air Quality

How are students affected by the air they breathe?

41%

of public school districts need to update or replace heating, ventilation, and air conditioning (HVAC) systems in at least half of their schools.

THIS MEANS ABOUT 36,000 SCHOOLS NATIONWIDE ARE FACING INADEQUATE AIR QUALITY.

Improving indoor air quality with reduced CO2 in the classroom improves student performance:

12%
faster task completion

2%
reduction in errors

2.5%
improvement in daily attendance

If improving air quality could reduce the number of sick days by even **10%**, it would save the average school district **$675,000** a year.

That's more money that could be going towards students' learning and teacher salaries.

Thermal Comfort

How cold or warm do kids feel in class?

Temperature matters—even more on schoolwork than office work, studies show.

Ideal classroom temperature

68° - 75°
Winter

73° - 79°
Summer

20%

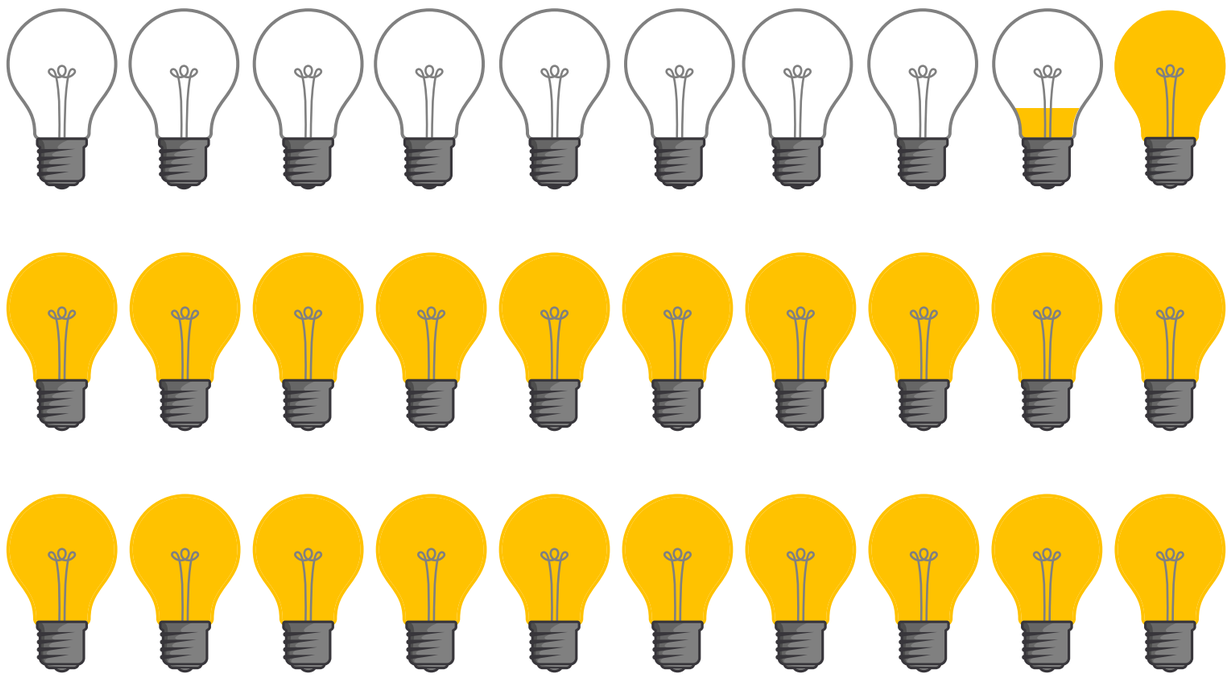
Adjusting classroom temperatures to improve thermal comfort can boost student performance on psychological tests and school tasks by 20%.

Lighting

Is the lighting helping or hurting student tasks?

28%

of public school districts need to update or replace interior light fixtures in at least half of their schools.



The lighting in school can affect

Sleep

The amount and type of light impacts a child's circadian rhythm—the natural internal process that regulates the sleep/wake cycle.

Productivity

Adjusting the intensity and color temperature of lighting can optimize student activities like test-taking and reading.

Mood

Lighting's effect on circadian rhythm not only matters to how well a child sleeps, but also how they feel.

The Right Light

Dynamic lighting—varying lighting techniques based on student activity—can support classroom learning. LED technology allows for variation in lighting intensity and color temperature that can help augment the environment for students.

3,500k
neutral white light

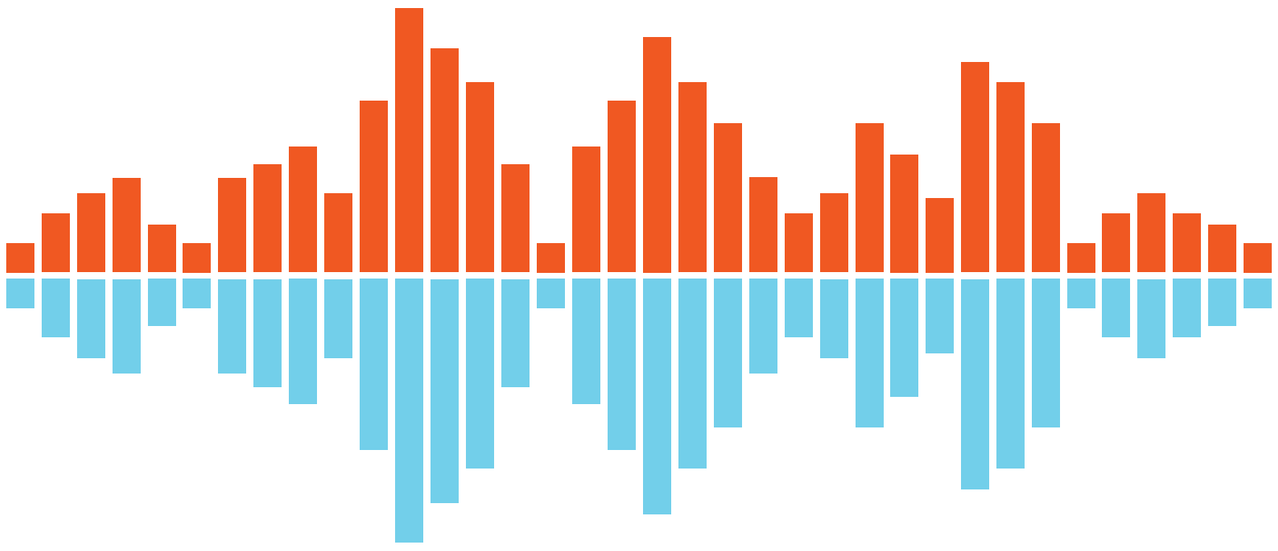
5,000k
cool white

6,600k
cool, bluish light

Students felt more alert and scored higher on their tests when they were in a classroom with 6,600K lighting, which mimics daylight, when compared with other kinds of lighting.

Acoustics

Is noise disrupting students' tasks?



Children are much more affected by noise than adults, and chronic exposure to outside or distracting noises may affect a child's cognitive development and learning.

Improving acoustics improves performance.

There is a direct relationship between acoustic comfort and student productivity. Generally, the less noise, the better.

Examples of ambient noise at school

Outside

- Lawn mowers
- School buses
- Children playing

Inside

- Students talking
- Lockers slamming
- Noisy fluorescent lights
- Air conditioning units

Noise levels affect students'

- Intentional and incidental recall
- Speech
- Listening comprehension
- Reading
- Writing
- Test performance
- Grade point average

Sources: American Speech-Language-Hearing Association; Institute of Educational Sciences; ScienceDirect; Trane; UL; U.S. Environmental Protection Agency; U.S. Government Accountability Office