

Airflow Edition

# Lizzie the Engineer

& The Secret Life of Buildings



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Students arrive to school on what seems to be a normal sunny day... until...

P25

P25





Why is it so hot in here?

For some reason, the classroom is very hot, causing the students to be sweaty and restless.



What happened  
to the A/C?

No one knows why the room is stuffy and stinky.  
Not even Mr. Smith.



What's wrong  
with the air?

Settle down!  
Nothing is wrong  
with the air.

The students are curious and the teacher is cranky.

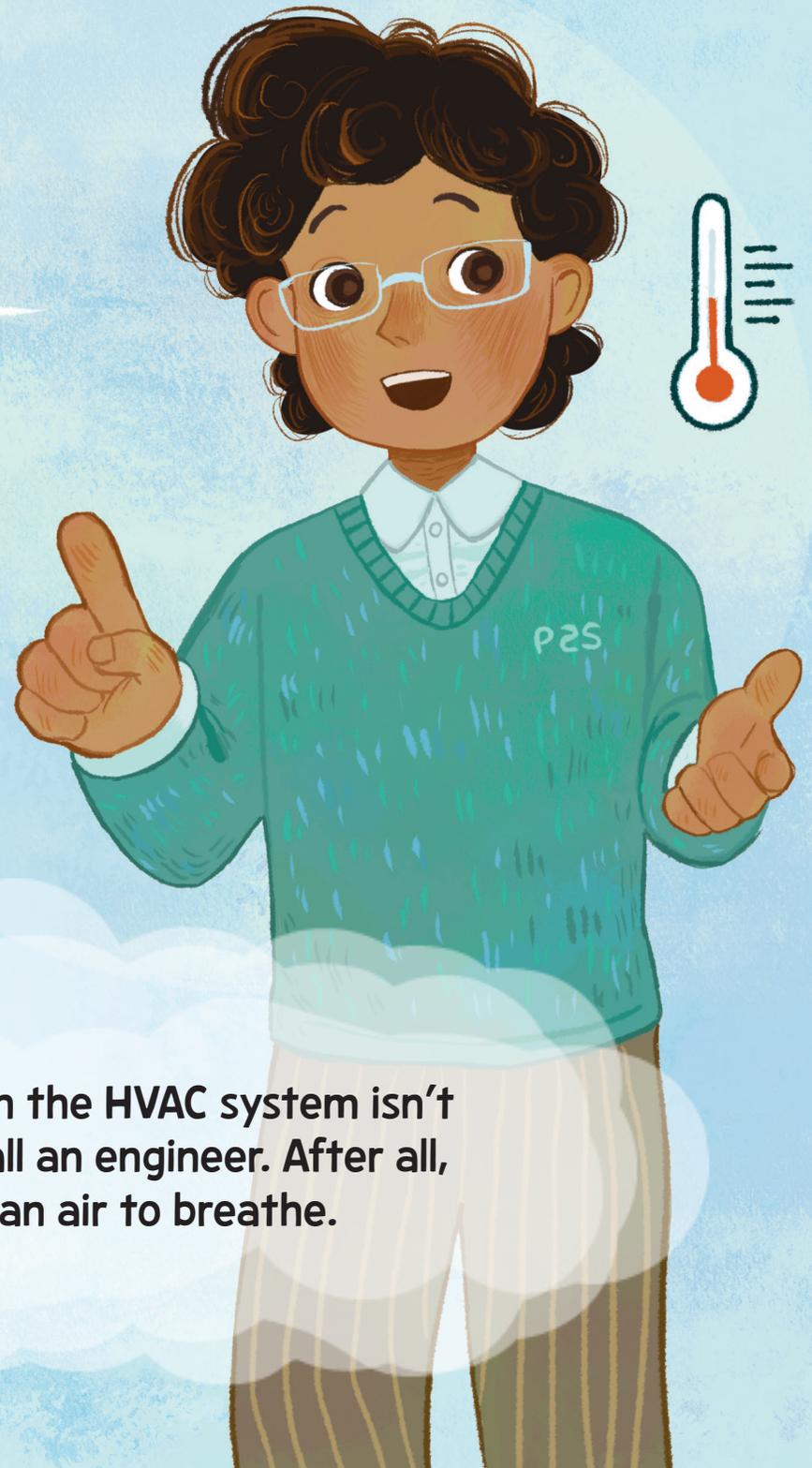
It might be the HVAC system.



WHAT'S H-BACH??

An HVAC system helps keep buildings comfy. It works like the building's lungs keeping the air clean and the temperature just right.

In order to figure out why the classroom is smelly and hot, we need an engineer!



Mr. Smith explains that when the HVAC system isn't working right, it's time to call an engineer. After all, everyone deserves clean air to breathe.

Bzz



Bzz

Bzz

Someone's phone is receiving an important notification...



**It's Lizzie's phone! She got an important text message from Mr. Smith.**



Hi Lizzie! This is Mr. Smith.  
Blaze 🔥, the prankster, is up to no good again! He messed up the airflow and temperature, so now the air is very warm and stale! Can you help us figure it out?

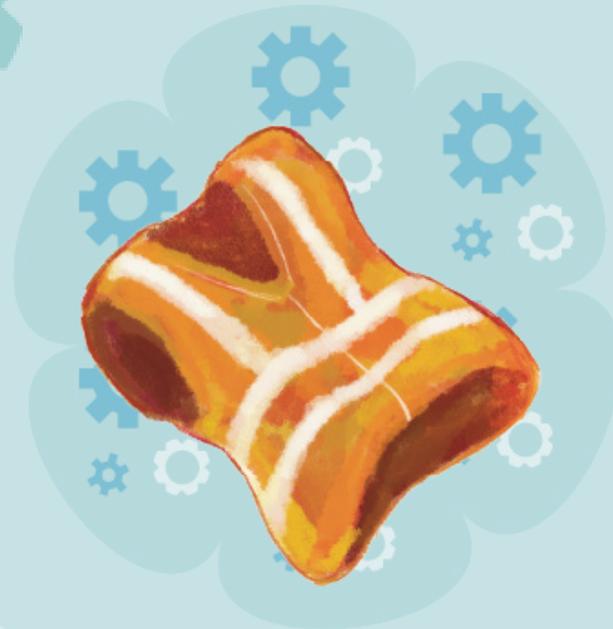
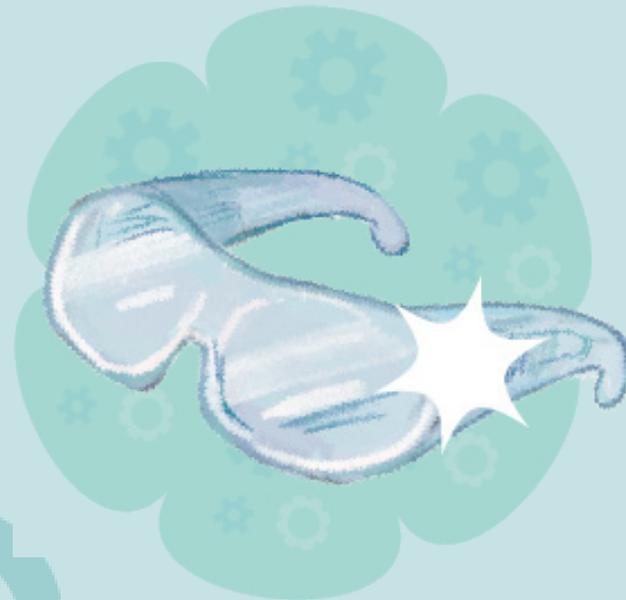
I'm on it!



Mr. Smith needs Lizzie's help!



**Lizzie slips into the equipment room to get ready for the job.**



She is sure to put on all her personal protective equipment before she gets to work!

**Engineer Mode Activated!**

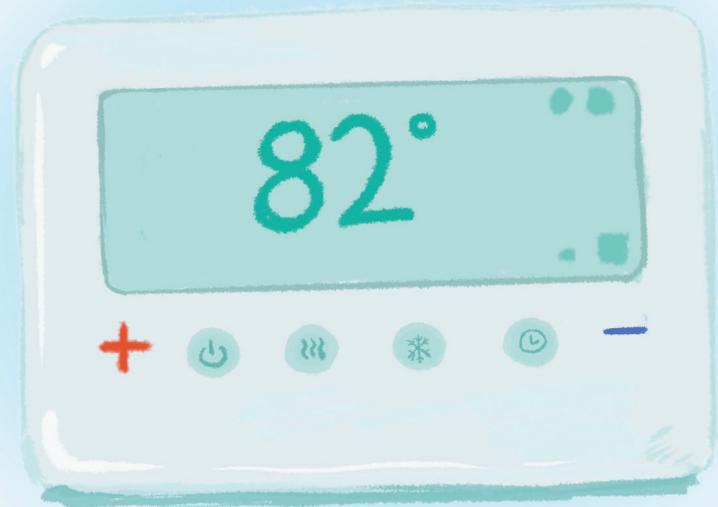


**Ta-da! Lizzie the Engineer appears  
to fix the HVAC!**



**Mr. Smith explains the problem.**

That's weird...  
It's as hot in  
here as it is  
outside!



I can  
fix that!



Every HVAC system has lots of different teams. Each team has different people in it, and every person has their own special job to do!

And Lizzie knows just who to call to make sure the stinky smells get taken care of...

# THE FAN TEAM!

**BAS!**



**SUE!**



**ED!**



Bas is the “brains”  
and leader of the group.

Ed pushes the  
stale air out of the room.

Sue supplies nice fresh air  
into the room.

Lizzie shows up to the maintenance room to talk to the Fan Team to figure out why it's so hot and stinky.



We're here!



But Ed is sleeping...





Bas told me to  
go to sleep...



Now Bas,  
why would  
you do that?



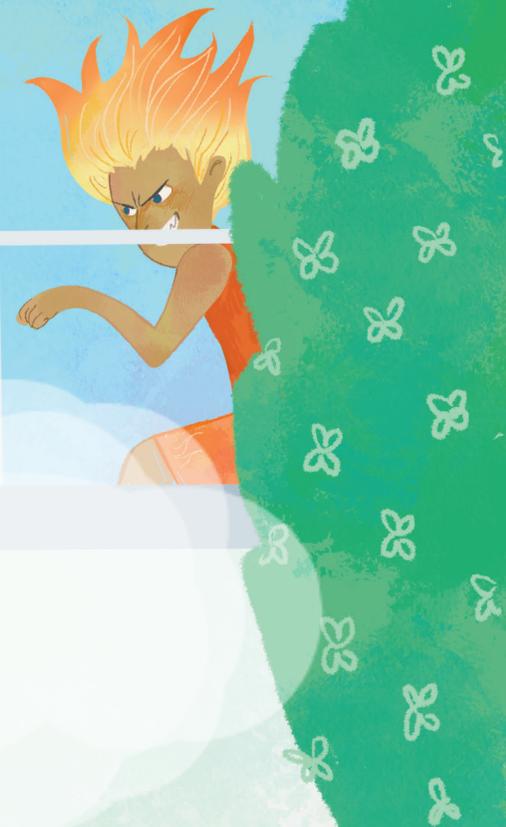


Well, this morning, Principal P called me saying that Ed has been working very hard lately and doesn't need to help as much anymore. Let me call her again and see what she meant.



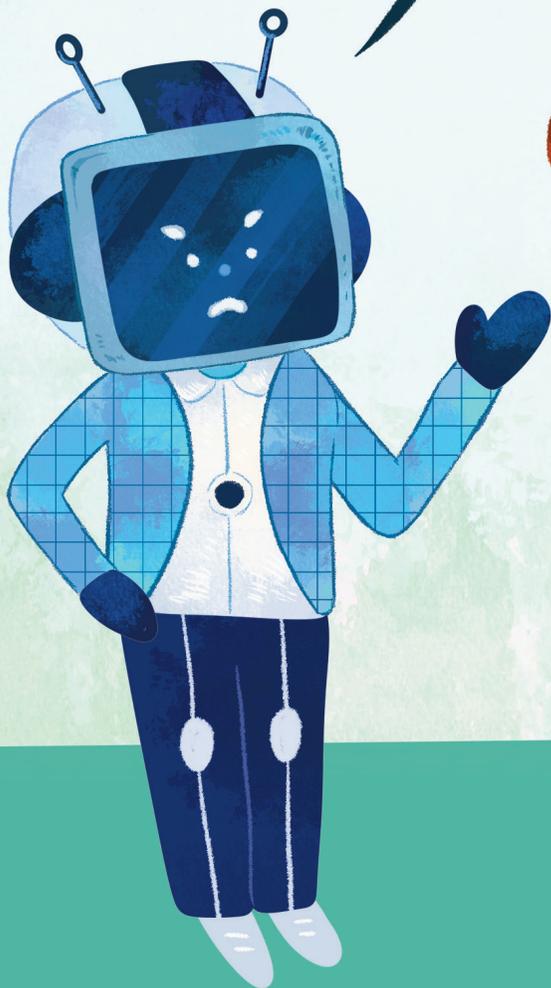
I didn't call you...

Principal Peterson doesn't remember making a phone call.



It's gotta be Blaze's fault!  
He loves to pull pranks like this.

...BLAAZZEE!!



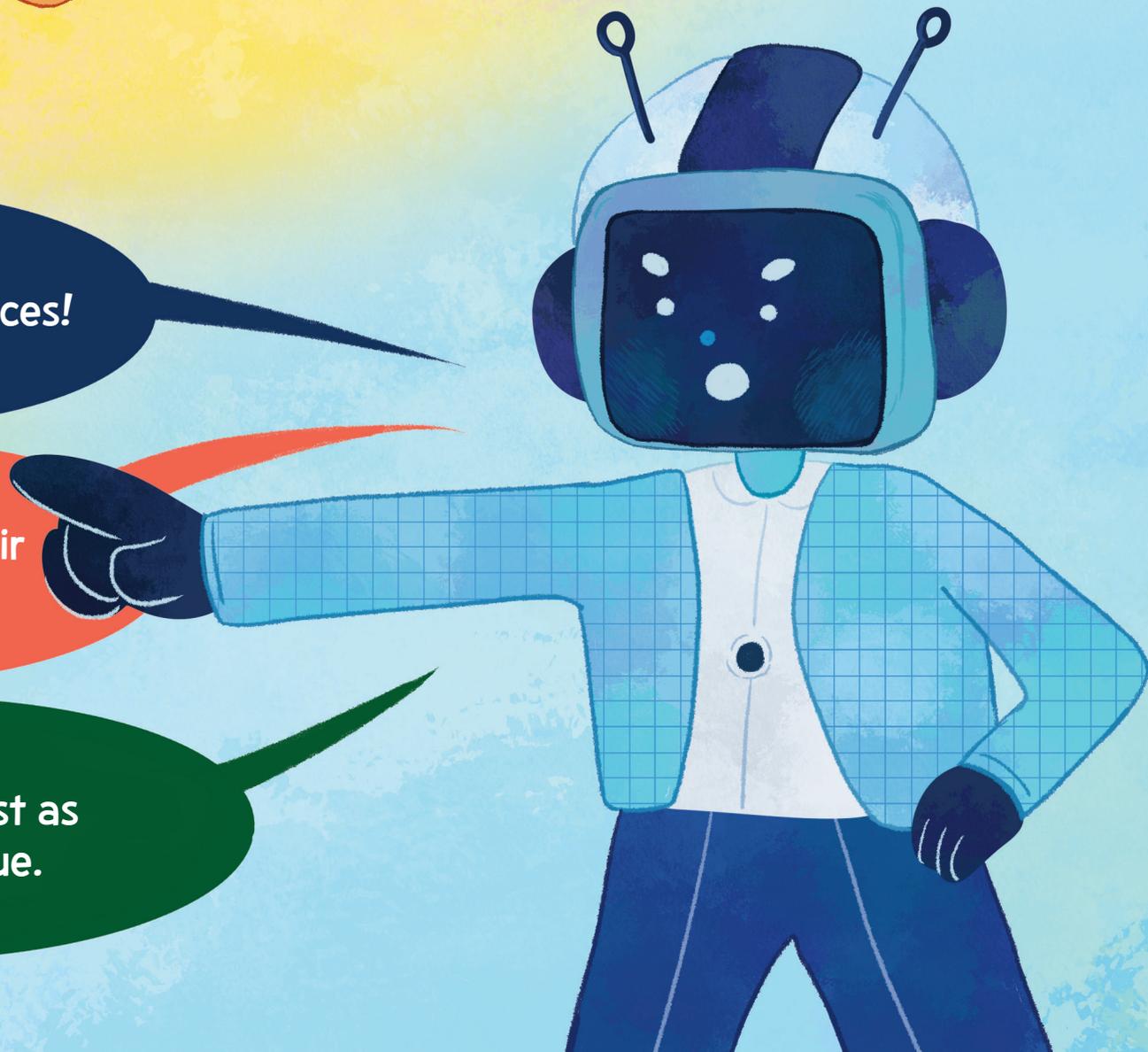


We need to return the Fan Team back to normal operation.

Everyone, in your places!

Sue, keep supplying air INTO the room.

Ed, push OUT just as much air as Sue.





The Fan Team works hard to push the stale air out of the building, and fresh air fills the classroom.

But the room is still really hot!

Good thing Lizzie knows exactly who can help with that...

# THE ROOFTOP TEAM!

They are going to make the room comfortable and cool.

SUZY!



Suzy is Sue's twin. She supplies fresh air into the building.

FILLY!



Filly uses laser beams to zap germs & clean the air.

VEE!



Vee supplies hot or cold air into each room.

COLE!



Cole makes cold air.



Hey Suzy! Why are you supplying hot air?

I'm just supplying whatever air I can. Cole is supposed to cool things down!

Cole, are you alright?

It's hot. I don't have energy to make cold air.

Maybe this will do the trick!

Thanks! Exactly what I needed!

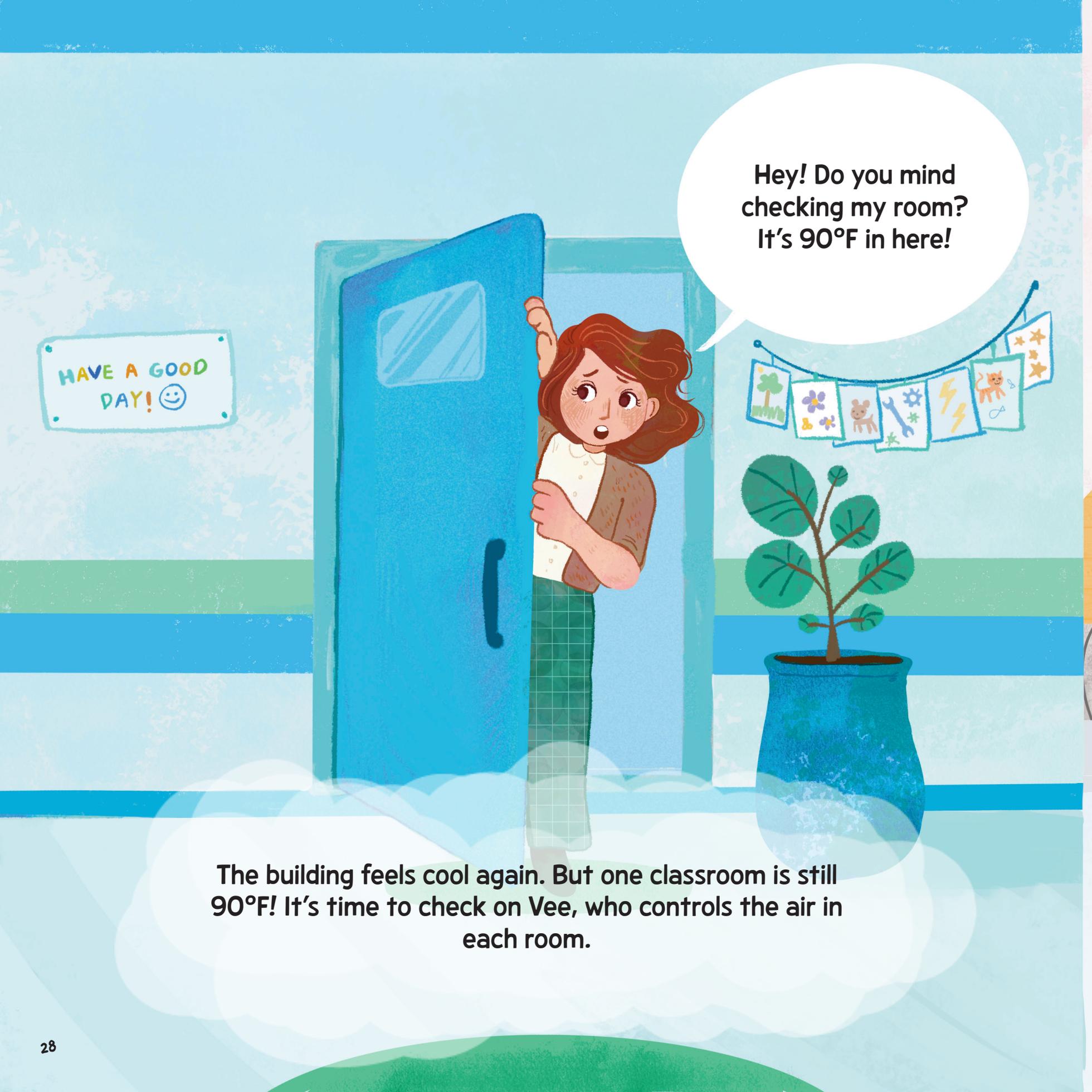


With cool water flowing through her again, Cole pulled heat out of the air.

(The Rooftop Team could now get back to providing comfortable temperatures for the whole building.)



YAY!



HAVE A GOOD  
DAY! 😊

Hey! Do you mind  
checking my room?  
It's 90°F in here!

The building feels cool again. But one classroom is still  
90°F! It's time to check on Vee, who controls the air in  
each room.



Hey! Don't mind me,  
just doing my thing,  
making people comfy.

Lizzie climbs up the ladder and into the ceiling  
to where Vee is.

Sorry to tell you, but  
I'm on the verge of a  
heat stroke.

Well... why are you  
blowing hot air!  
It's 90°F in here!

Oh no! Is it  
something I did?



Bas told me this morning  
that it was cold outside  
and to crank up the heat.



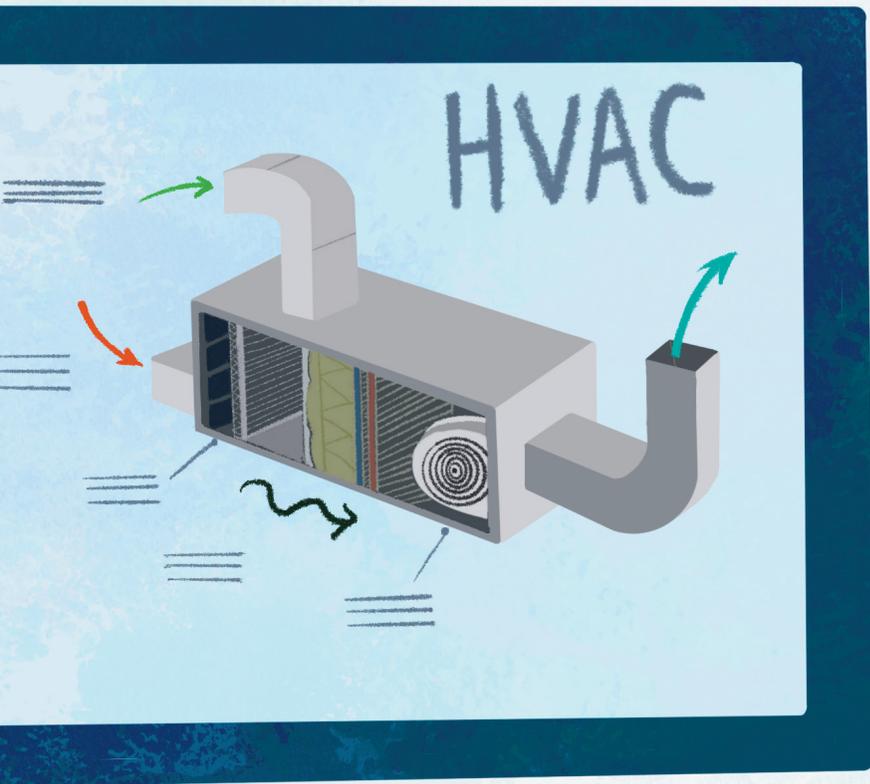
...BLAAAZEEE!!!



Vee! Set your  
temperature lower so  
we can cool the room  
super fast!

You got it!  
Custom comfort  
coming right up!





Finally, after getting all the teams to work together, the classrooms are back to normal and the students are ready to learn!

Thanks to Lizzie and the HVAC teams, the classrooms are comfy, the air is fresh, and everyone is happy. Clean air belongs to everyone, and engineers are the problem-solvers who make sure it happens.



# Welcome to Lizzie's word toolbox!

<b>Airflow</b>	The way air travels through ducts and rooms around a building.
<b>Bas (Building Automation System)</b>	The building's "brain" that watches the equipment and helps everything work together.
<b>Cooling</b>	When heat is taken out of the air to make a room feel comfortable.
<b>Engineer</b>	A person who solves problems and helps machines and systems work better.
<b>HVAC (Heating, Ventilation, and Air Conditioning)</b>	The team of machines that helps keep a building warm, cool, and filled with fresh air.
<b>Temperature</b>	How hot or cold the air feels.
<b>Ventilation</b>	Bringing fresh air into a building and pushing stale air out.

# Acknowledgements

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When Mr. Smith's classroom gets too hot and stinky, he calls Lizzie the Engineer and her air conditioning helpers. Lizzie and the team work together to cool the school and save the day. Everyone deserves to have fresh, clean air and engineers like Lizzie work smart to fix air conditioning problems in buildings.