

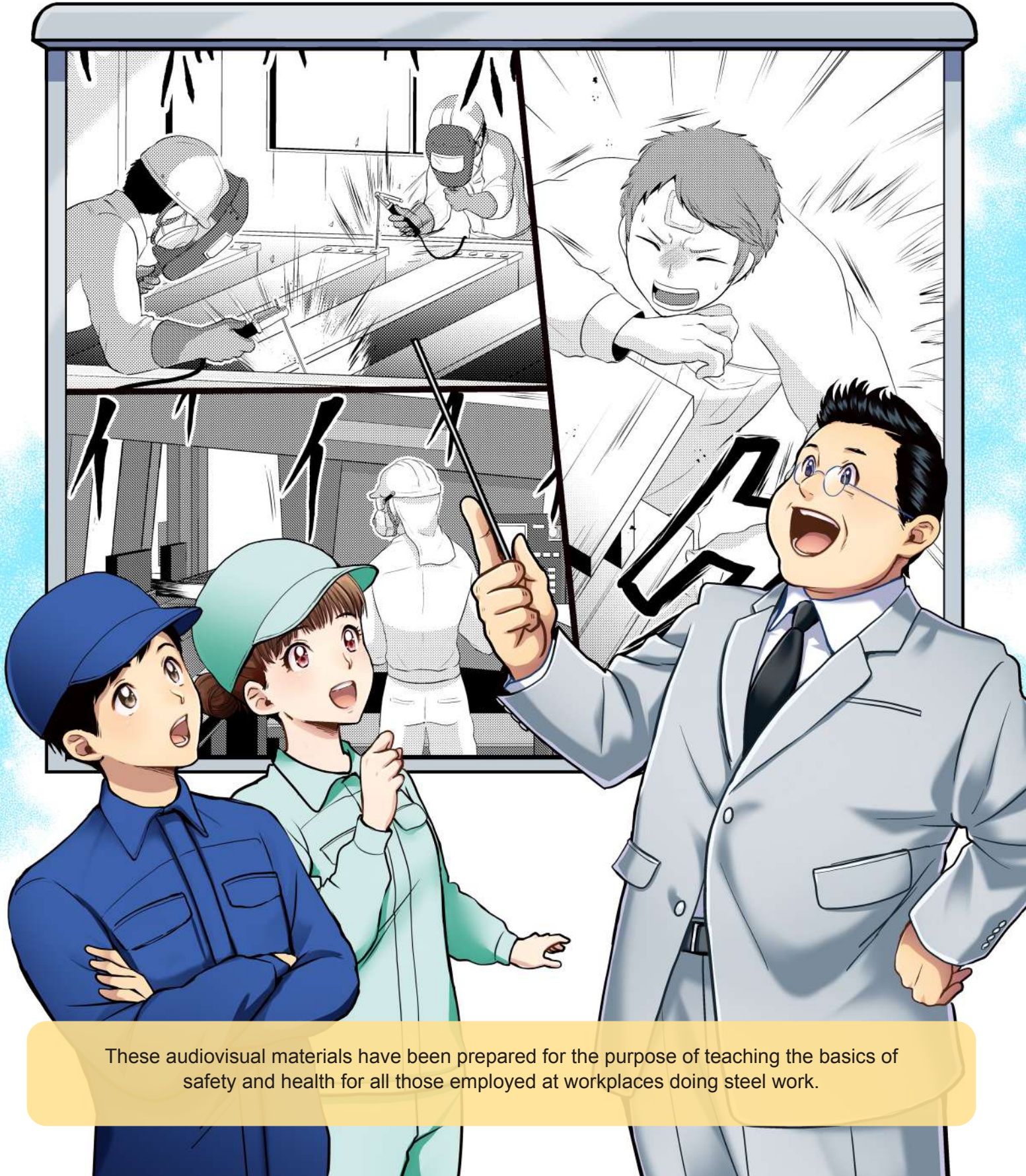
まんがでわかる



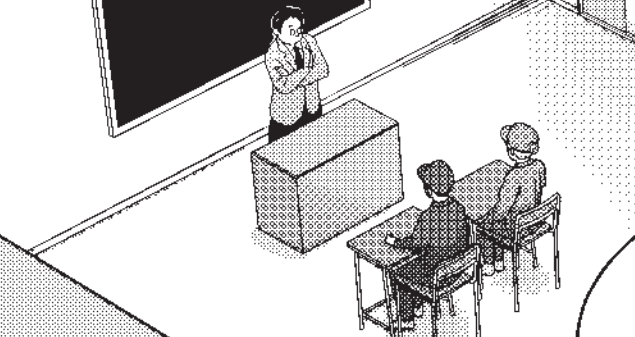
English
英語

鉄工作業の安全衛生

Learn Through Manga
Safety and Health in Steel Work



These audiovisual materials have been prepared for the purpose of teaching the basics of safety and health for all those employed at workplaces doing steel work.



Today we're going to learn about safety and health for steel work!



Since you'll handle heavy steel materials and operate machinery, you have to be particularly careful about your safety.

That's right!

I wonder what kind of work is done.

What kind of things do we need to watch out for?

Industrial accidents happen even in such workplaces.

Huh!?

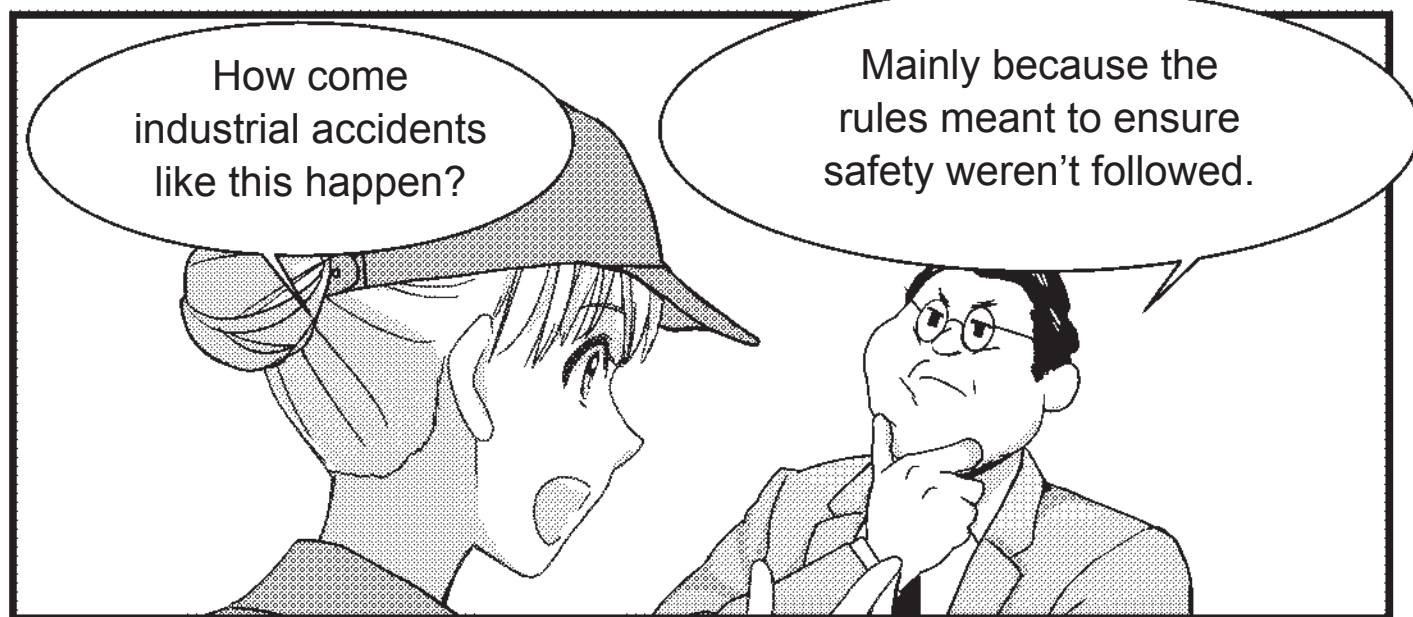
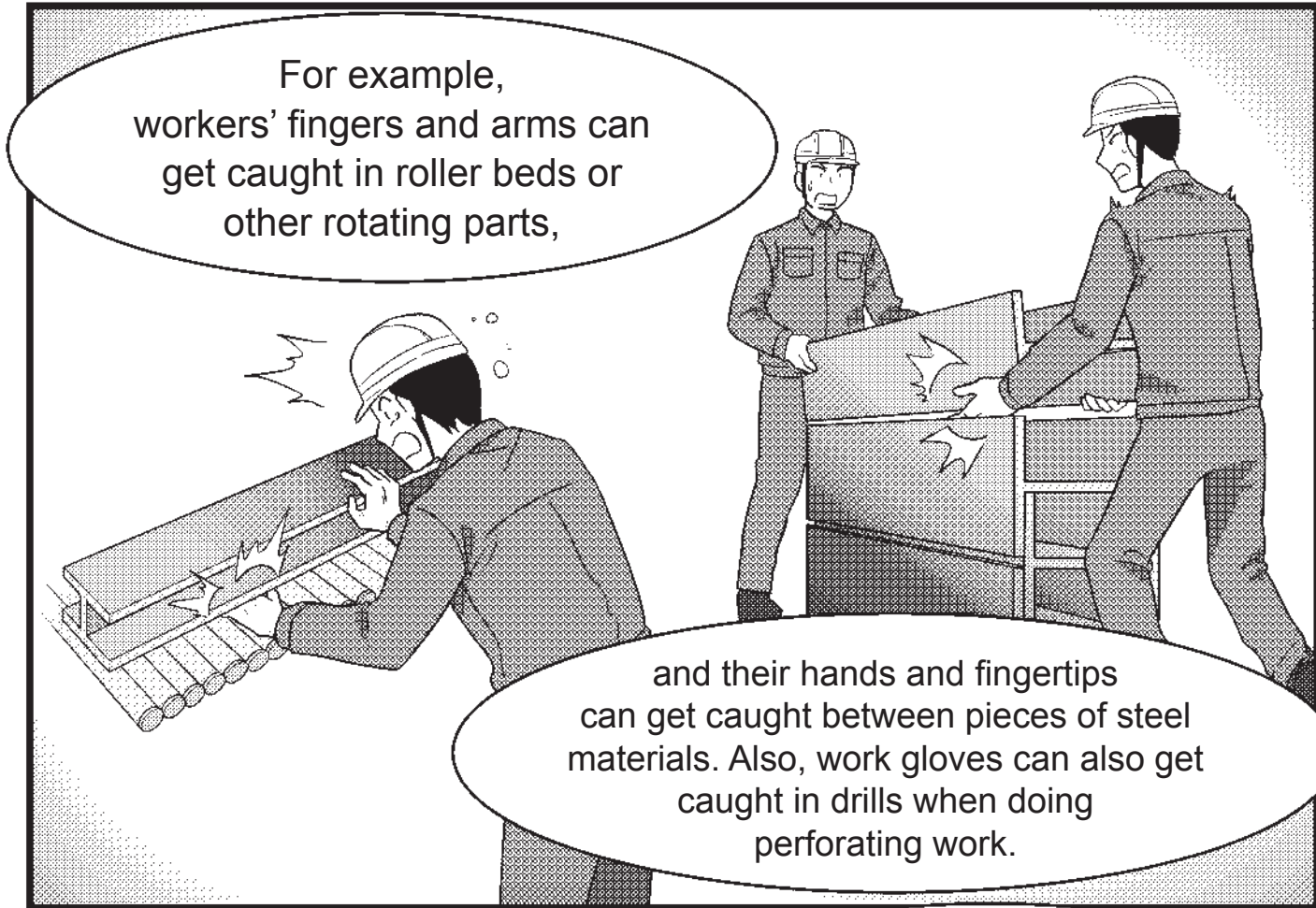
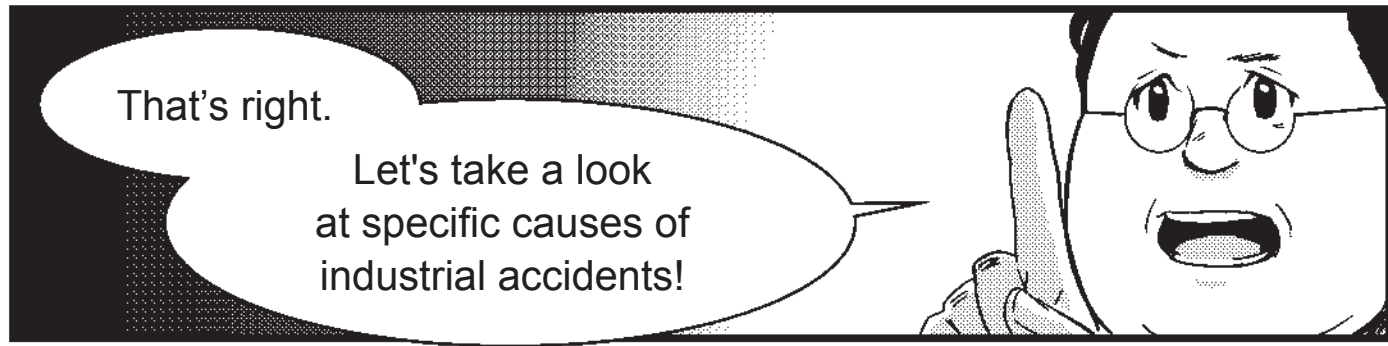
Alright, let's take a look at the main causes of industrial accidents.

Rate of Deaths and Injuries in Steel Work

1	Getting caught/trapped	32%
2	Flying/falling objects	23%
3	Falling over	8%
4	Getting hit	7%
5	Collapses	7%

Reference: Ministry of Health, Labour and Welfare's Industrial Accidents Database (Death / 4 or More Days Leave) (2012-2017)
(Aggregate of 1,076 incidents considered related to steel work)

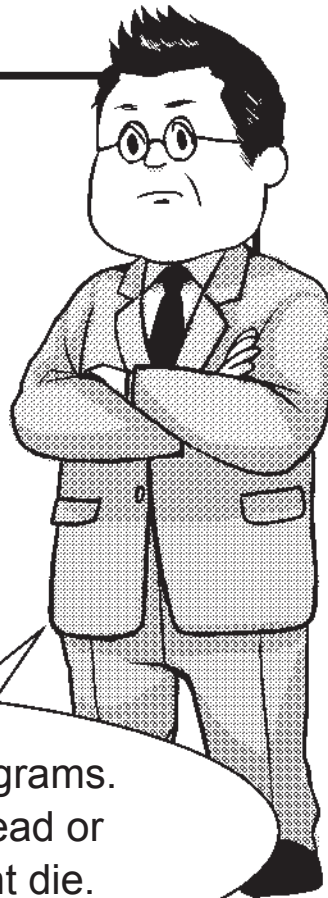
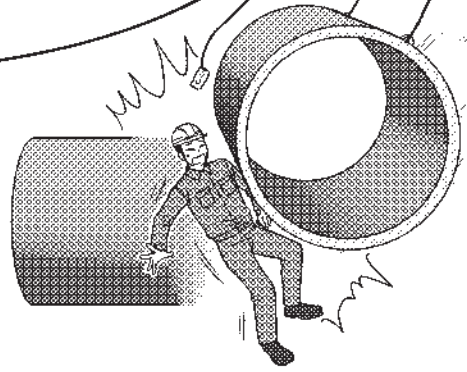
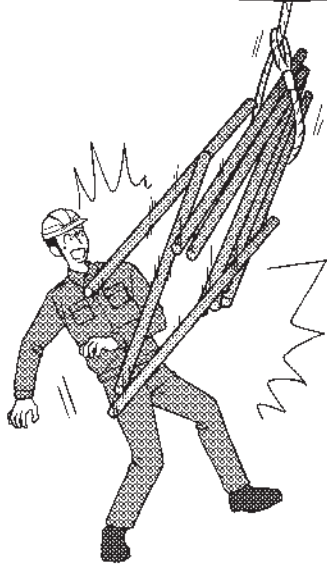
Getting caught/trapped and flying/falling objects make up over half of the total. I wonder how come workers get caught or trapped?



*Rules meant to ensure safety are based not only on laws and regulations, but also on lessons learned from many past failures and accidents.

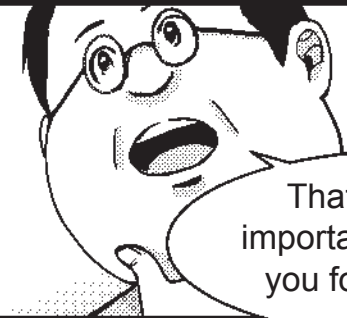


Accidents involving cranes can cause serious injuries in particular. If a piece of steel material that's been lifted up rotates or is slung poorly it could fall, or materials that have been bundled up could come crashing down.



Steel weighs hundreds of kilograms. If you were to get hit in the head or crushed beneath it, you might die.

This work is done side by side with danger, isn't it?



That's why it's so important to make sure you follow the rules.

And wearing protective equipment is also critical to protect yourself.



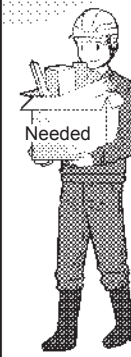
There's lots of different types, so you need to choose the right equipment for the type of work you'll be doing and wear it correctly.

What kind of things do we need to watch out for on a regular basis?



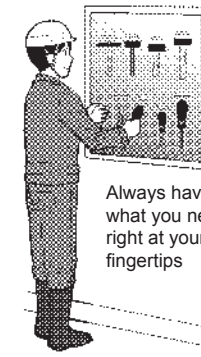
Do you know about 4S?

4S stands for Seiri (sorting), Seiton (set in order), Seiso (shine), and Seiketsu (standardize). These form the basis of safety and health.



Distinguish between what you need and what you don't, and discard what you don't

Sorting



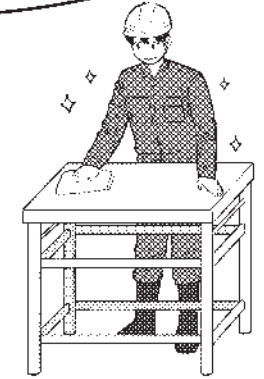
Always have what you need right at your fingertips

Set in order



Keep clean by clearing trash and dirt

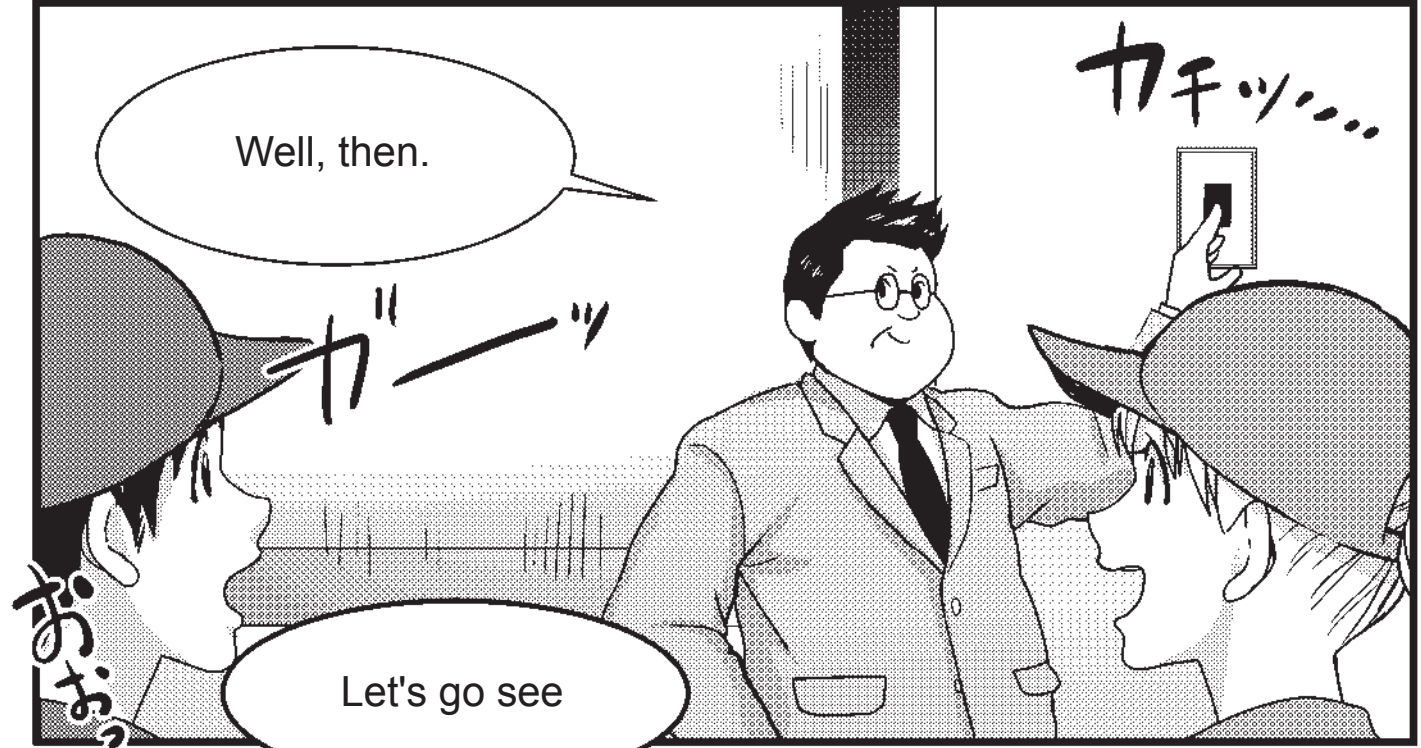
Shine



Maintain cleanliness and keep yourself, your clothes, and your surroundings spotless

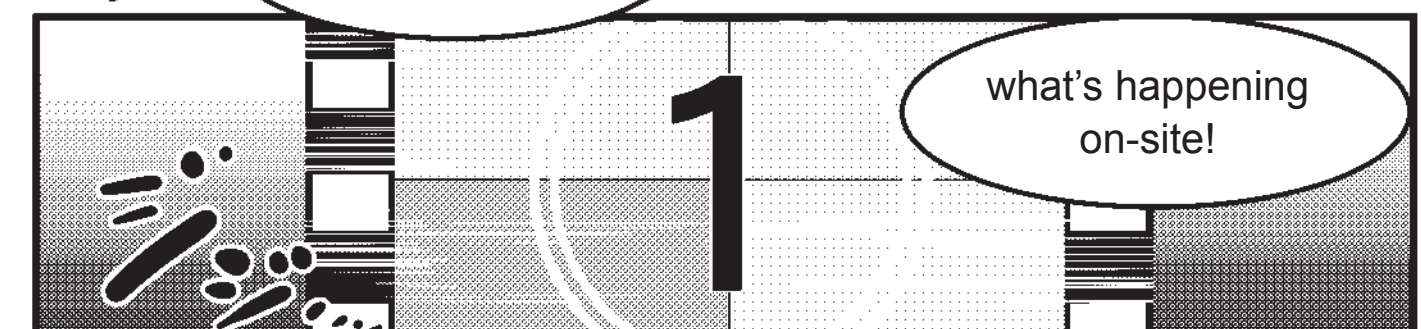
Standardize

Well, then.



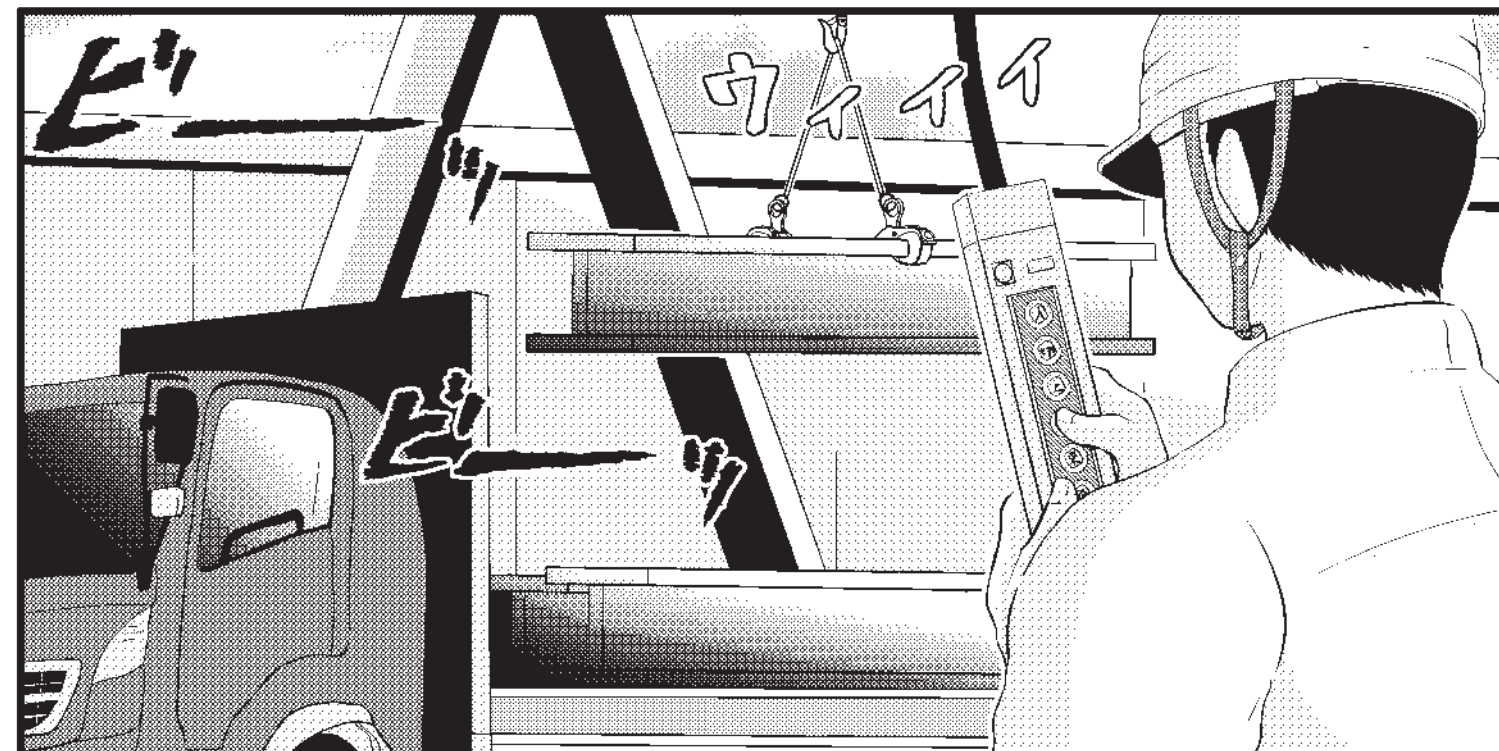
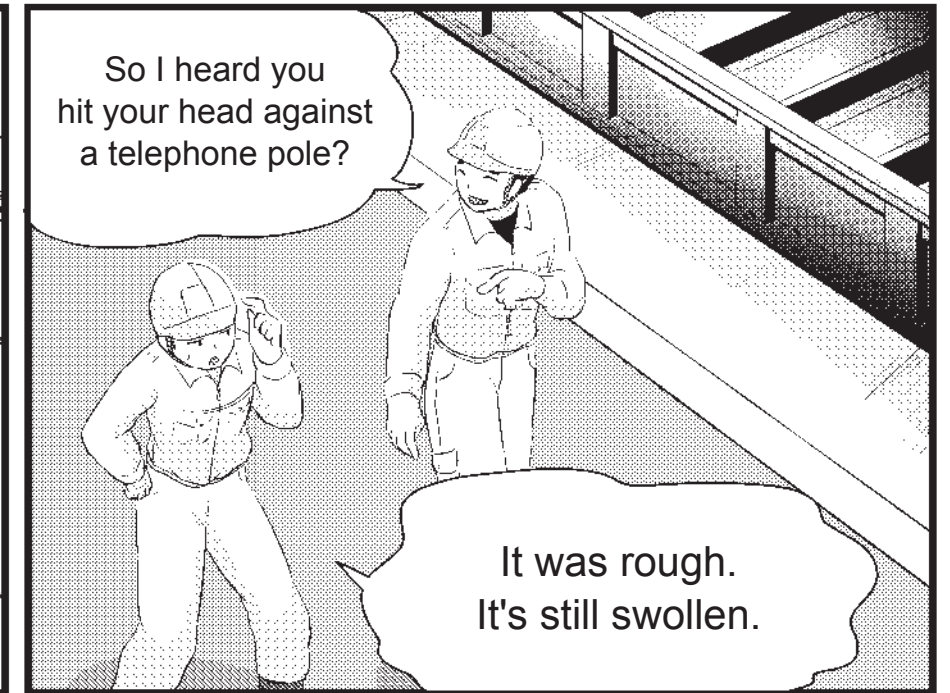
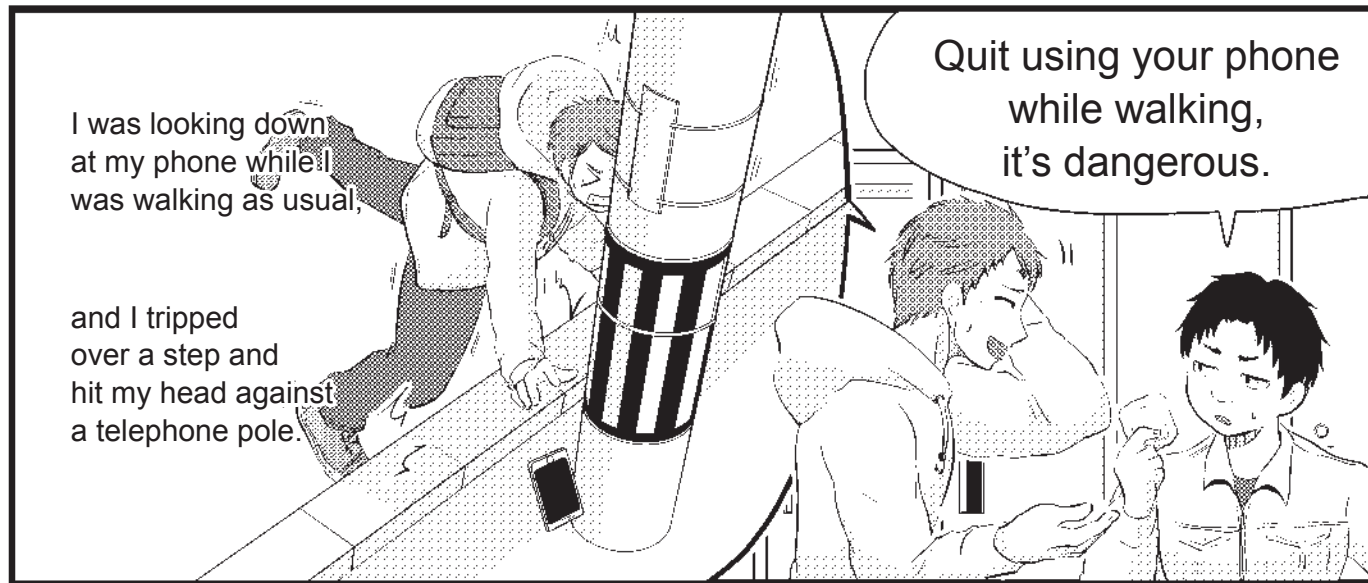
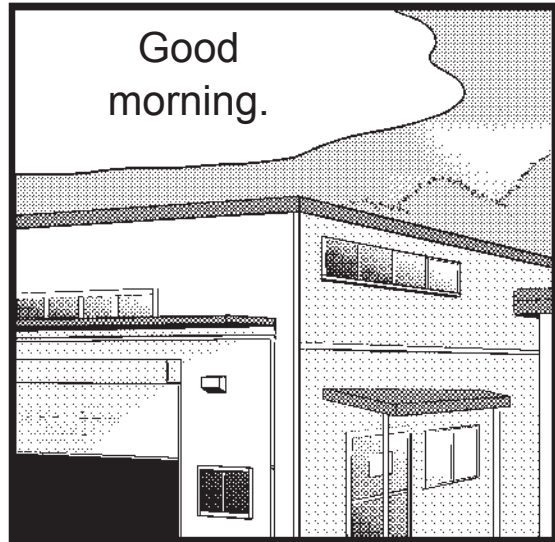
Let's go see

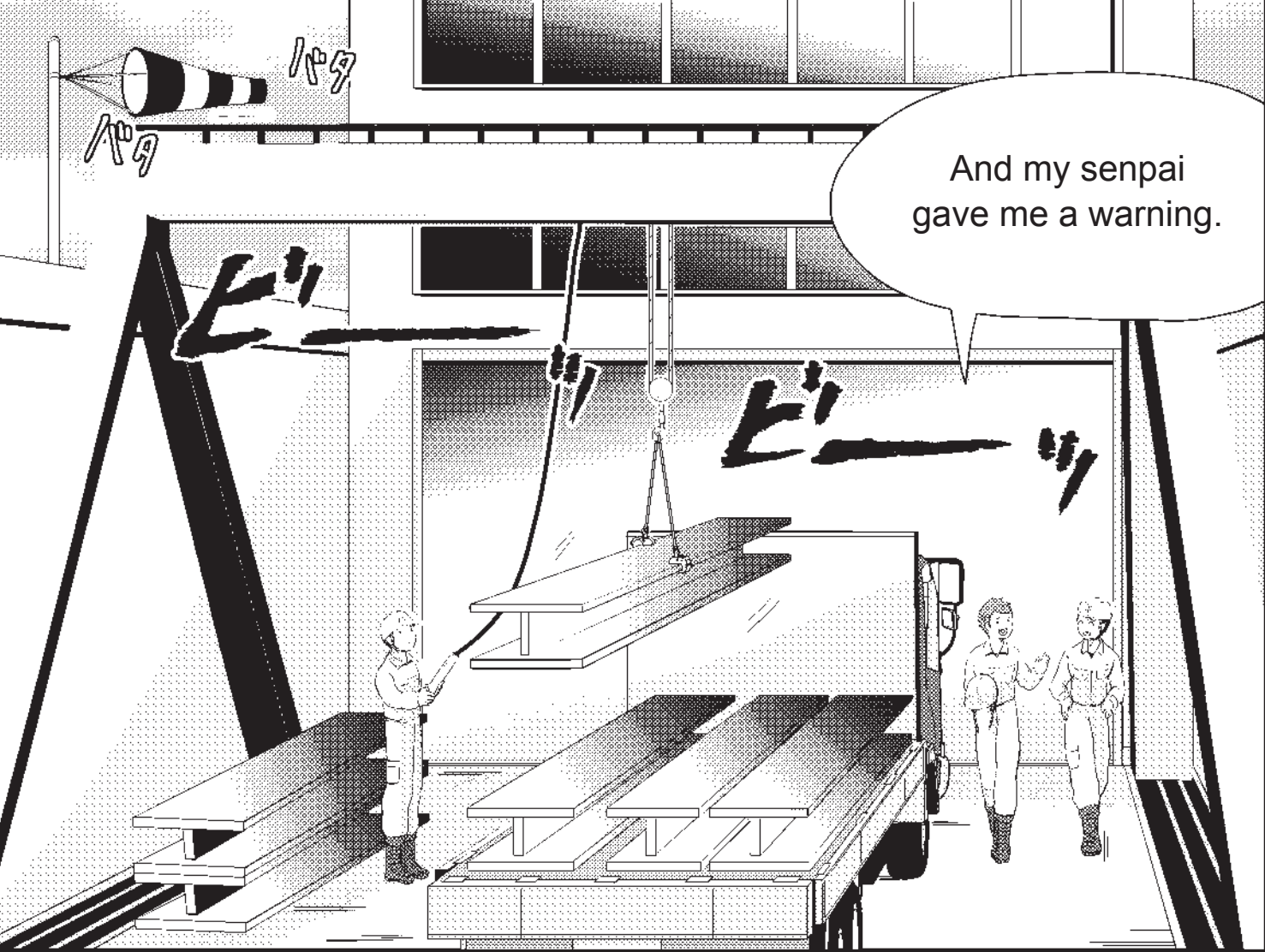
what's happening on-site!



CASE 1

Watch out for suspended loads!



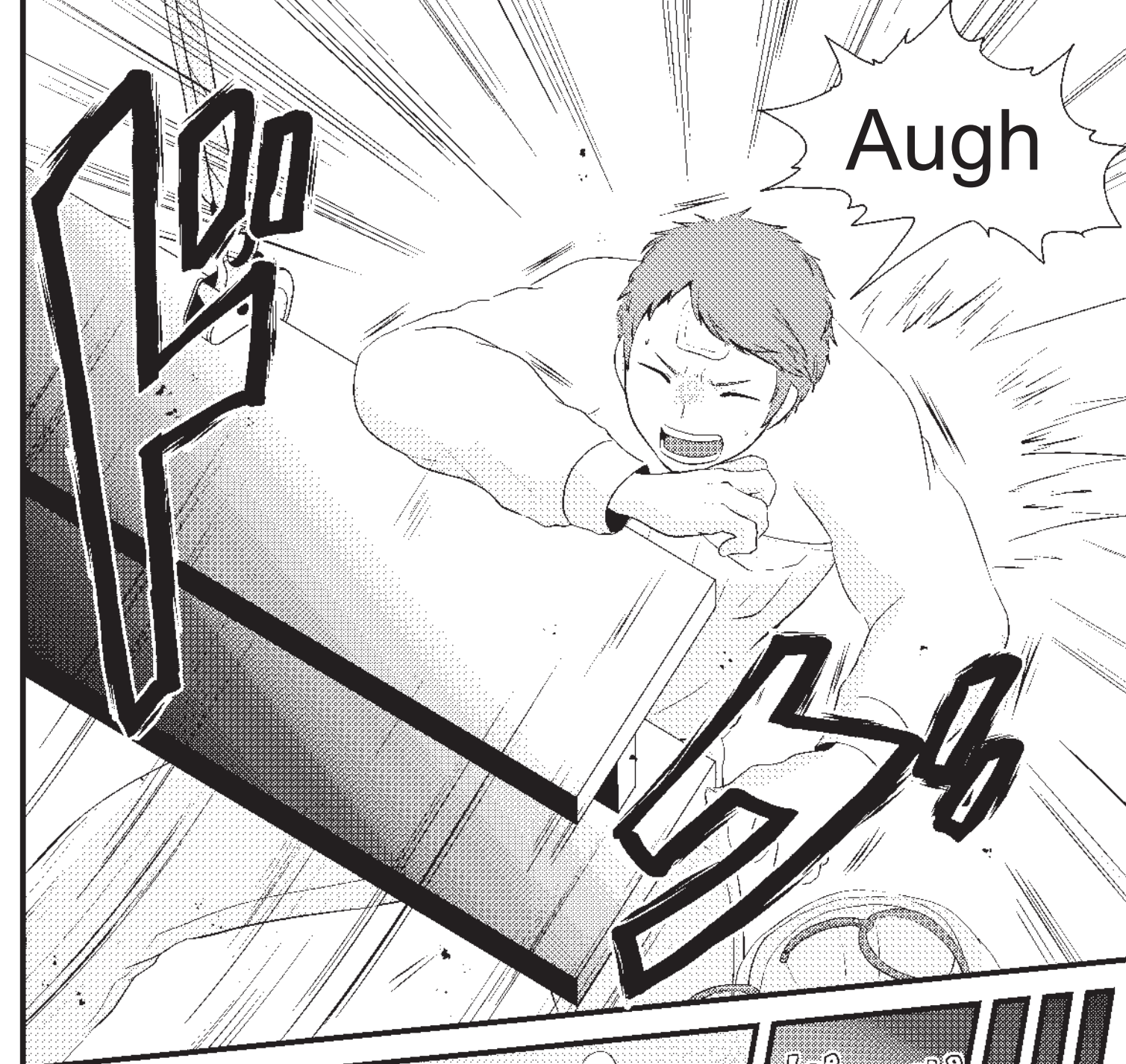


And my senpai gave me a warning.



Whoa!

Huh...!



Augh

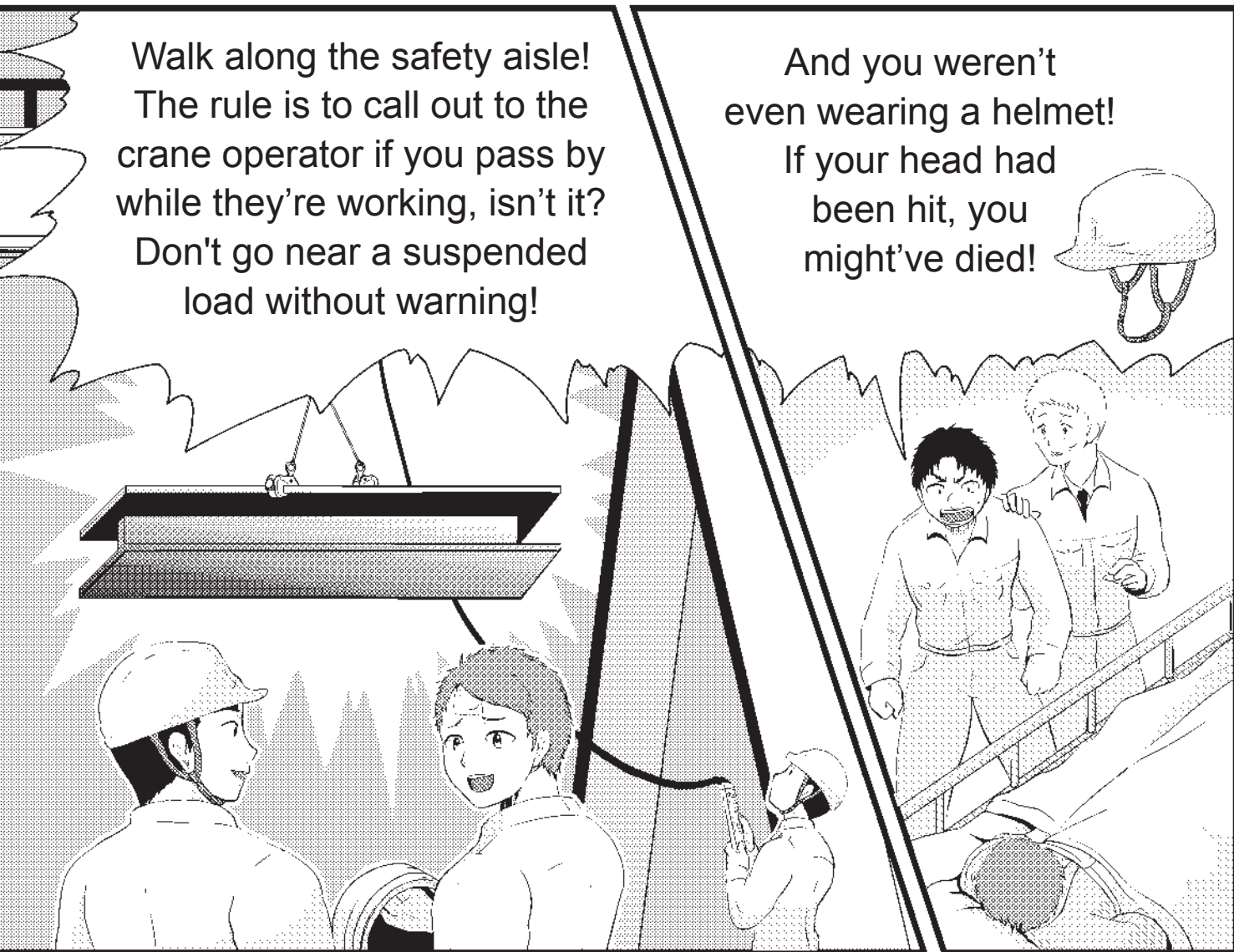


ピーポー
ピーポー
ピーポー....



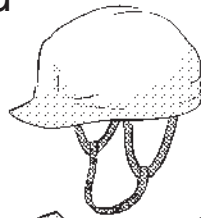
It was serious enough of an injury to break your ribs, and we're really lucky your life was spared.

But...



Walk along the safety aisle! The rule is to call out to the crane operator if you pass by while they're working, isn't it? Don't go near a suspended load without warning!

And you weren't even wearing a helmet! If your head had been hit, you might've died!



It's important to always think about where danger may lie.

Anticipate danger and act accordingly, not only when you're doing your own job but also when you're moving around the factory or commuting to work.

Yes sir, I understand.

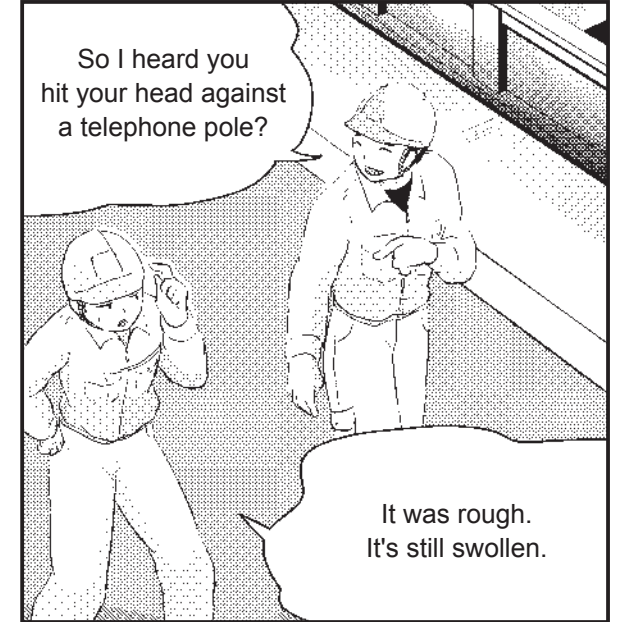
CASE 1 Summary

1 Follow the rules and wear protective equipment!



Wear a helmet when moving around areas of the factory where they are required.

2 Keep to the safety aisles!



Walk along the safety aisles when moving around the factory.

TIPS Watch out for forklifts too!

Don't pass in front of or behind forklifts.



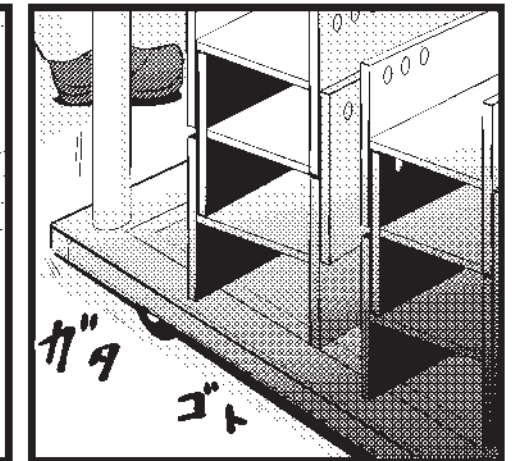
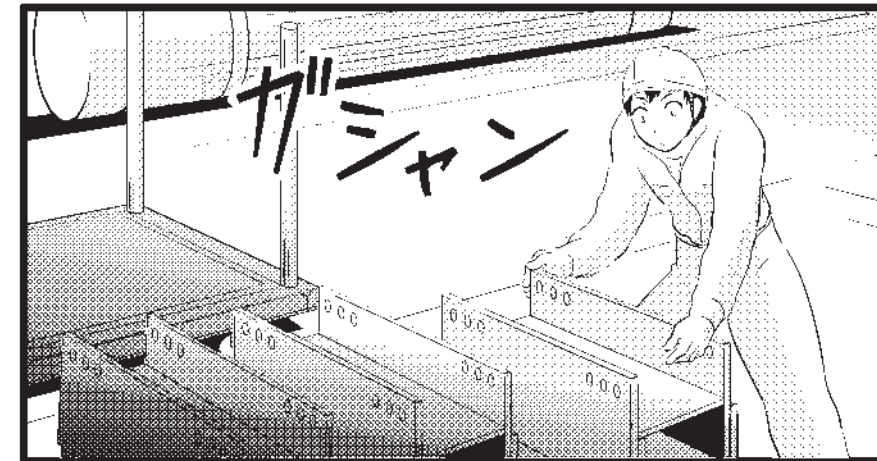
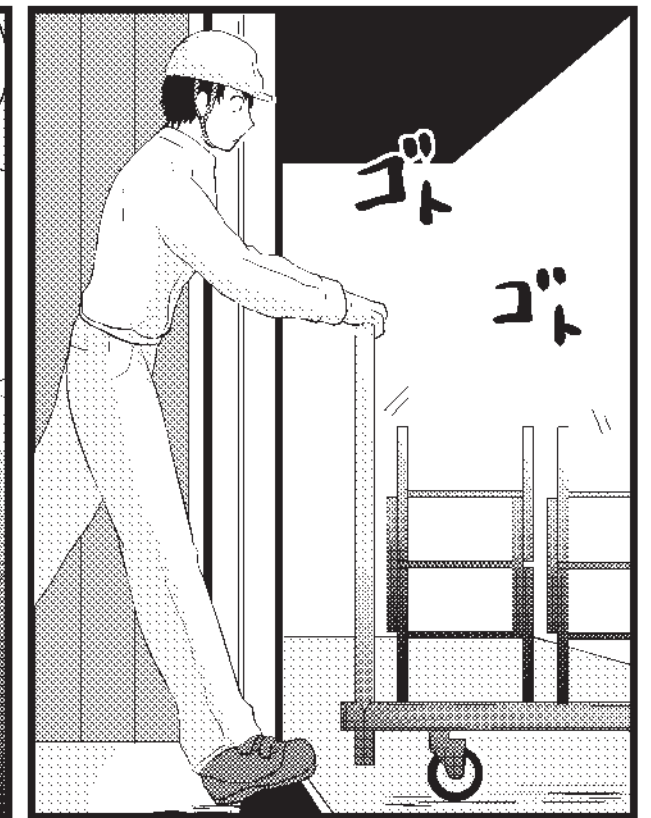
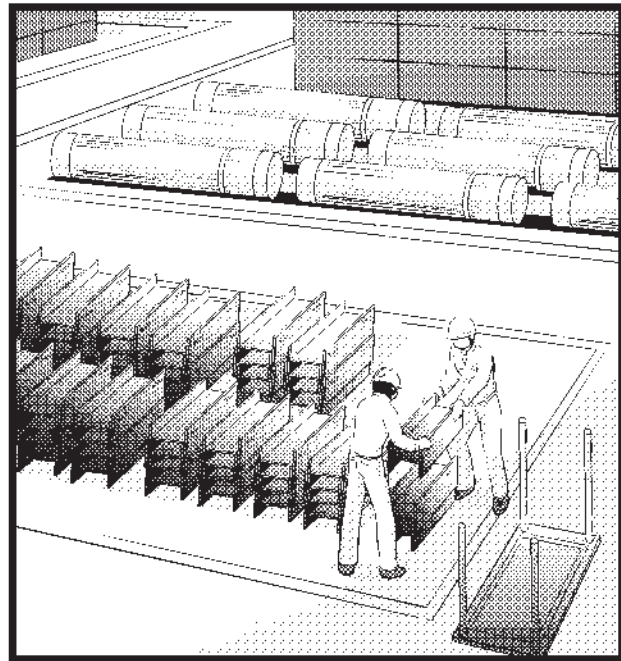
When passing by, confirm that the forklift has stopped and be sure to call out to the driver and give them a signal.

Be careful of the forks.



Even if a forklift is stopped, be careful not to trip over its forks.

CASE 2
Careful not to get caught!





Ouch!



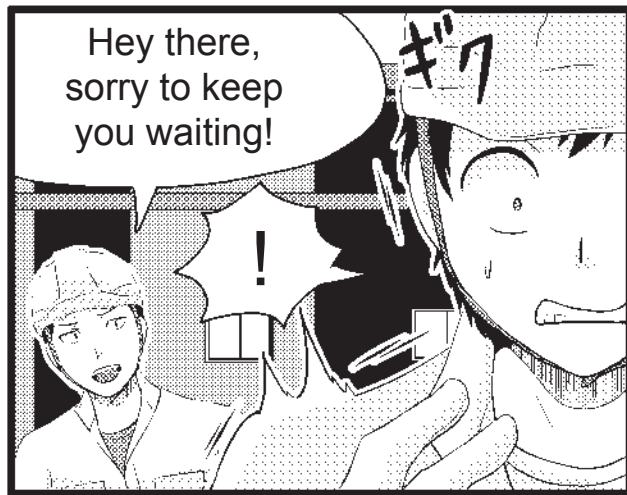
Why would you work alone?
I told you not to, didn't I?



Hey!!
What's wrong
with your hand?



It hurts, but I
might get in
trouble...
I'll keep quiet.



Hey there,
sorry to keep
you waiting!



I managed to
do it myself.

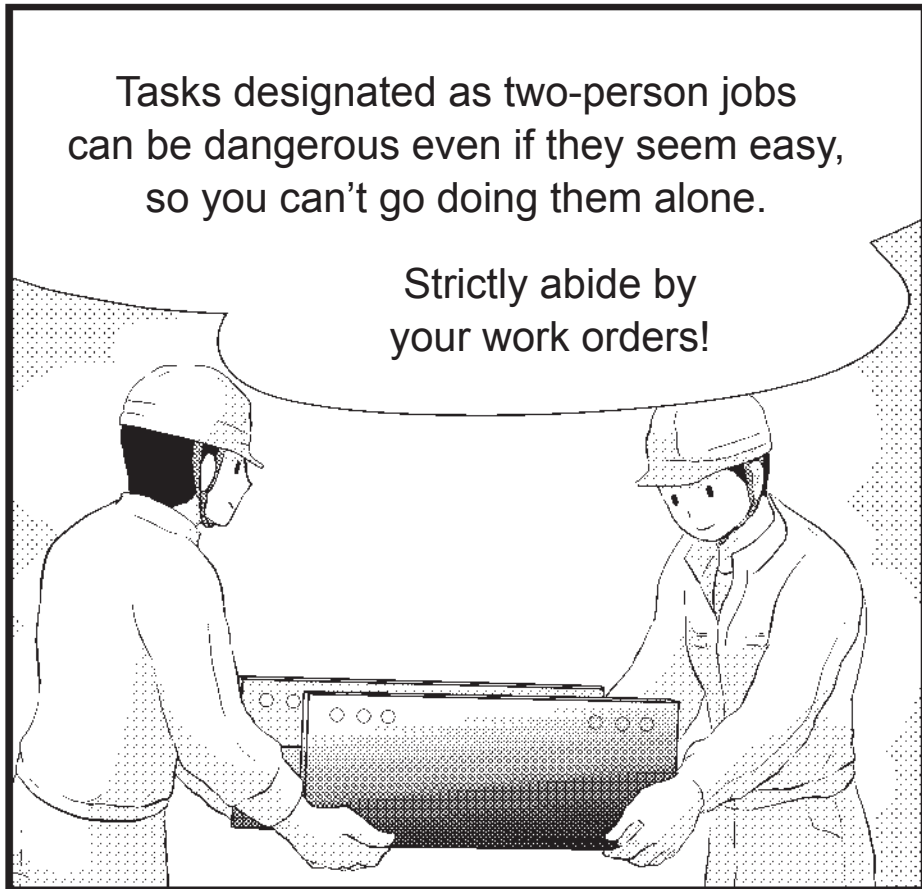
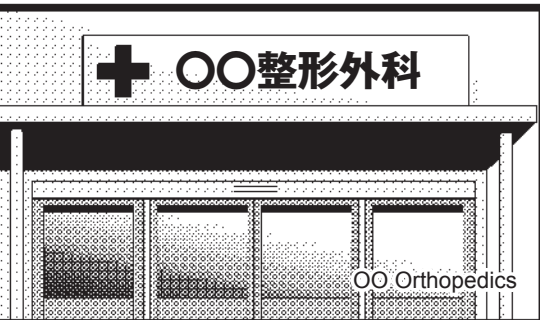
Huh?
Were you working
alone by chance?



It's so
swollen!



Foreman! We've
got a problem!

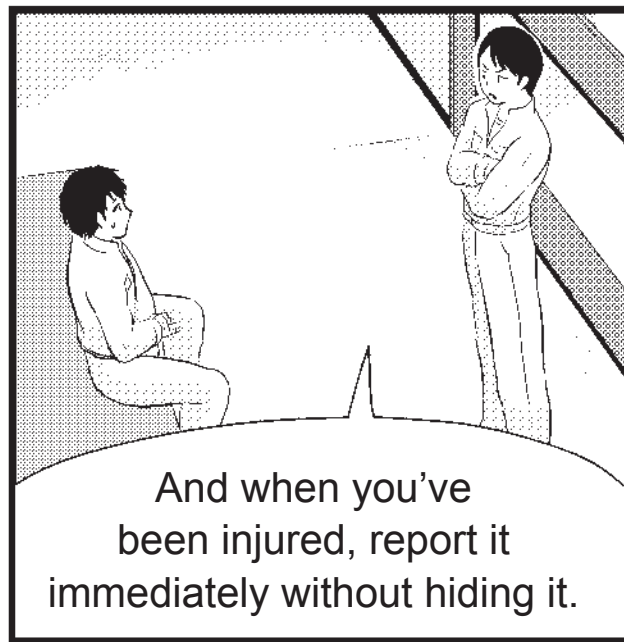


Tasks designated as two-person jobs can be dangerous even if they seem easy, so you can't go doing them alone.

Strictly abide by your work orders!



I had no idea I'd broken a bone.

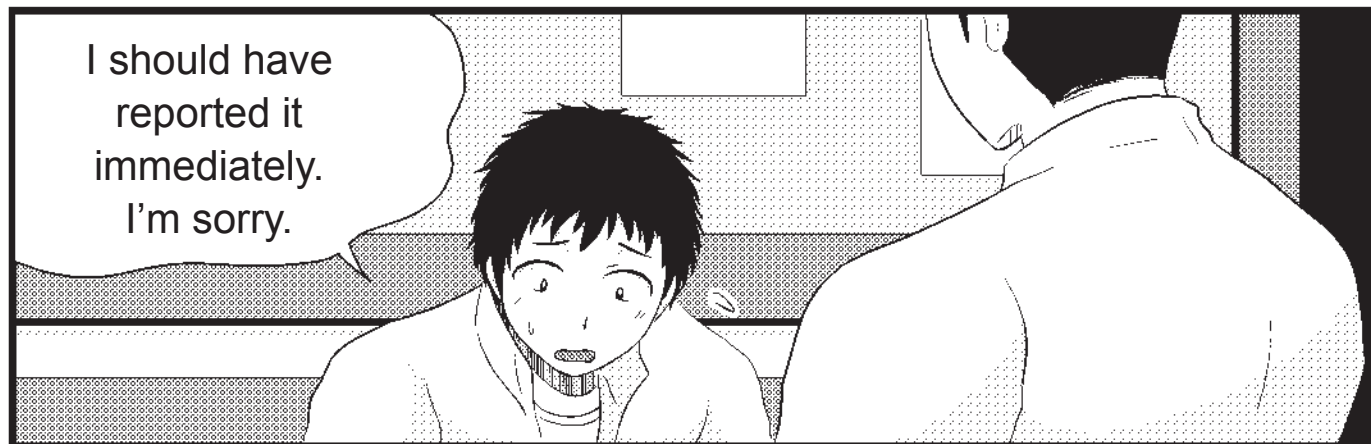


And when you've been injured, report it immediately without hiding it.



That's because your physical wellbeing is what's most important!

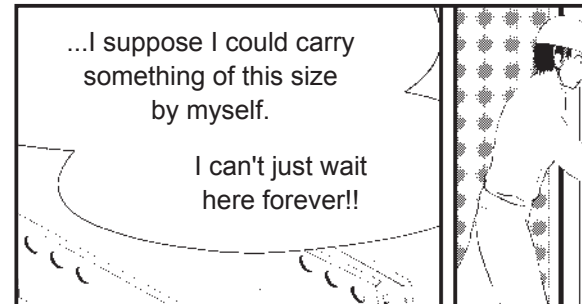
...!



I should have reported it immediately. I'm sorry.

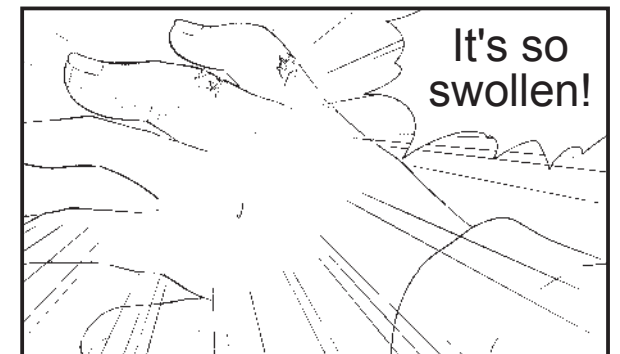
CASE 2 Summary

1 Strictly abide by work orders!



Perform tasks with the designated number of people, not arbitrarily.

2 Report injuries as soon as they happen!



When something happens, be sure to report it or consult with someone.

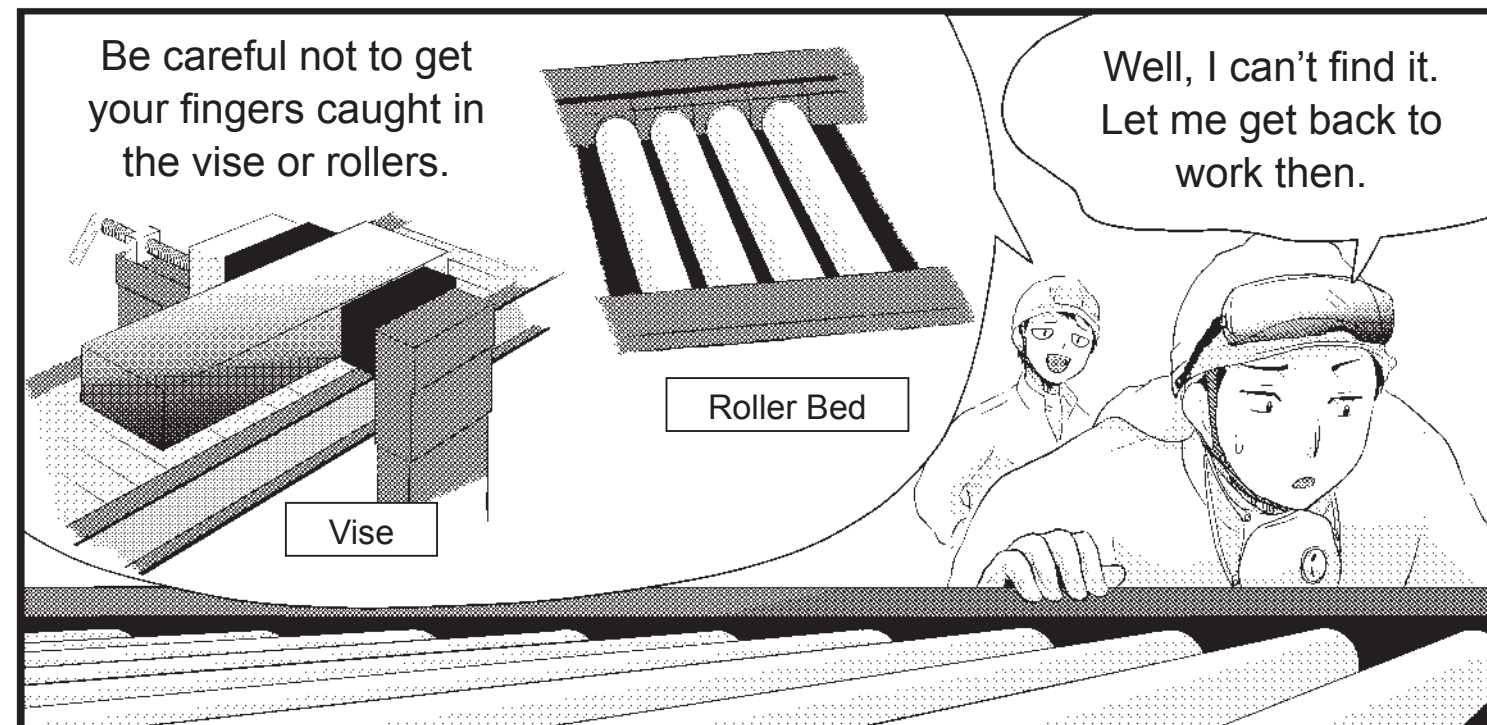
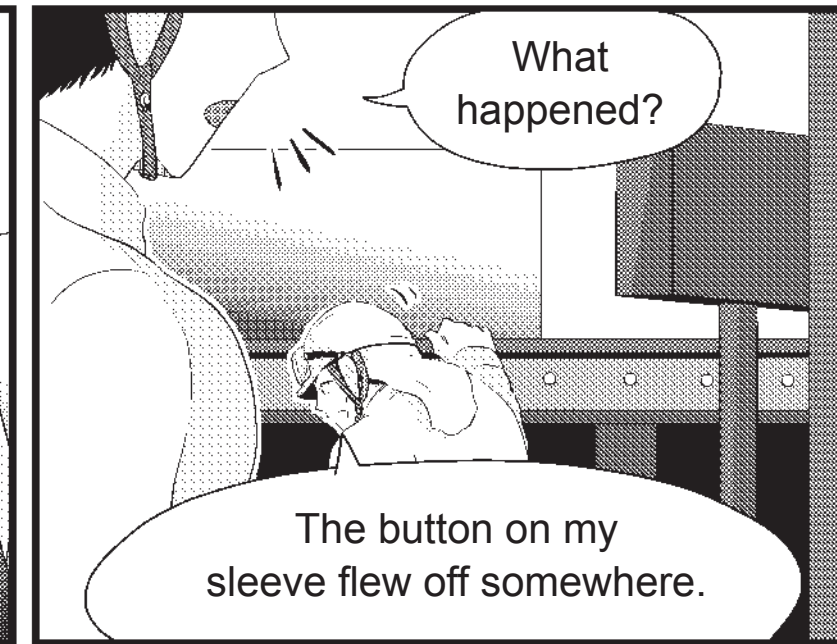
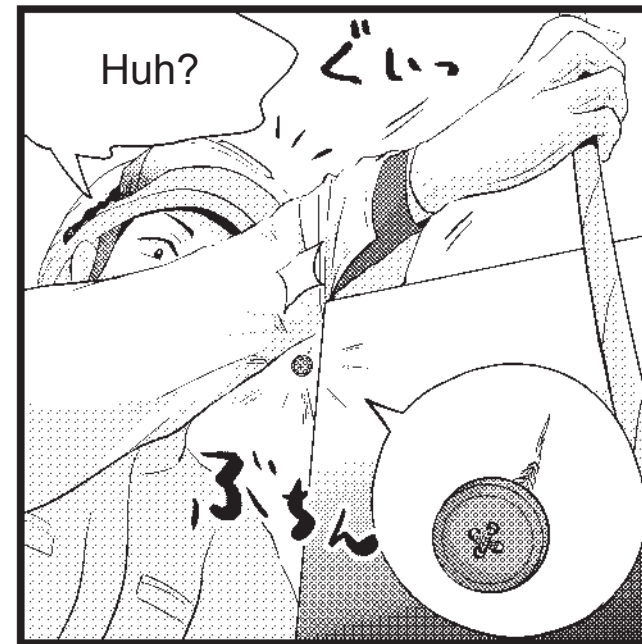
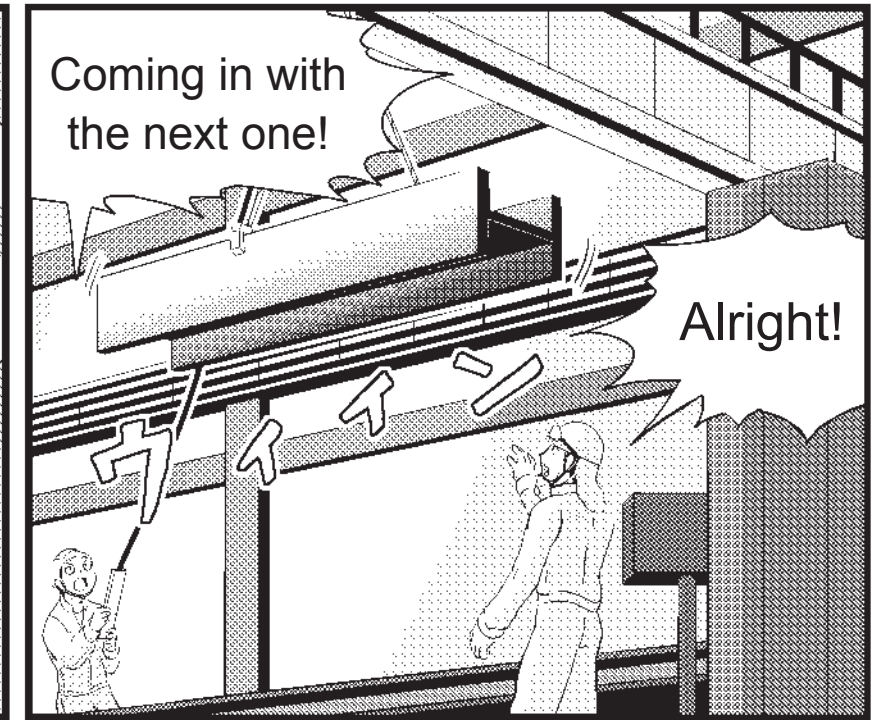
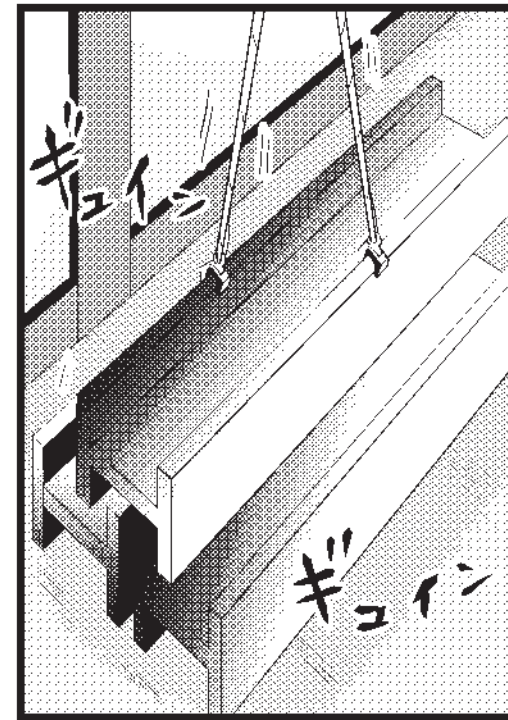
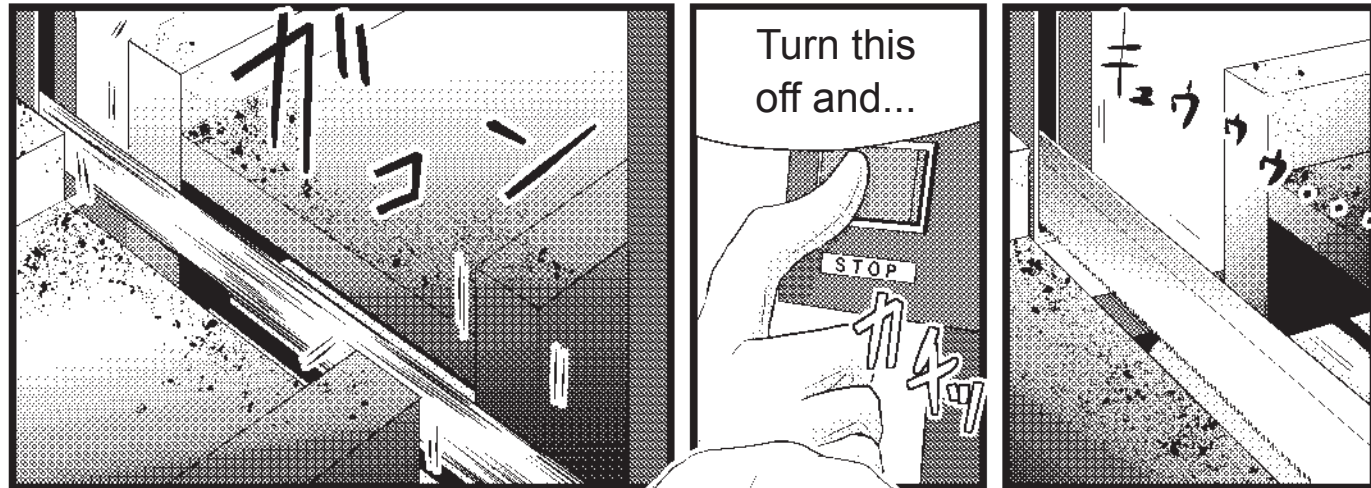
TIPS Be careful of temporary welds too!



When turning over a temporary welding that has been assembled, take note of the following:

- Two people should work together on large and heavy parts.
- When turning a part over, make sure that there are no other workers around.
- Workers nearby also should not approach when parts are being turned over.

CASE 3
Handle machines properly!



Resuming work!

What?
The blade's
started slowing
down.

The cutting sound is strange
and smoke's coming out too.
Is it malfunctioning?

There's not a lot of
metal chips either.
They're shaped weird too,
like sand.

What
happened!?

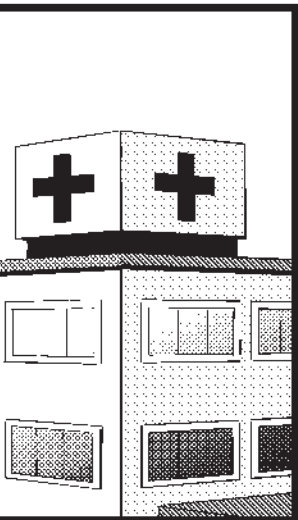
His hand got
caught in the
blade!

Ahhhh!!

Wha?!

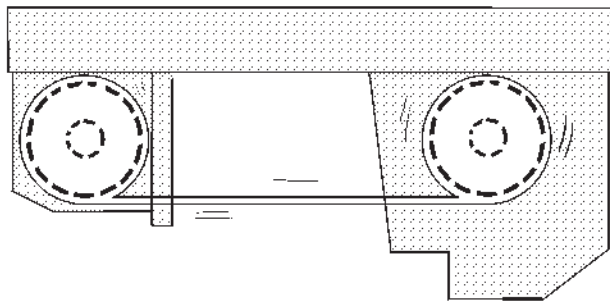
Emergency Stop

非常停止



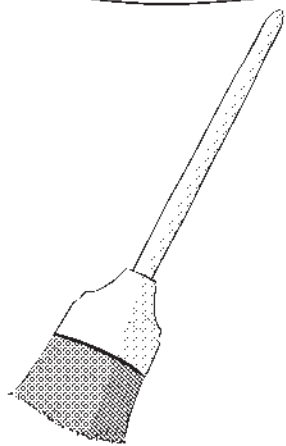
Even if machines are running slow, they're still many times stronger than humans. You'd never win out against them, so you can't approach them recklessly.

The wheels inside still spin even after the stop button has been pressed.



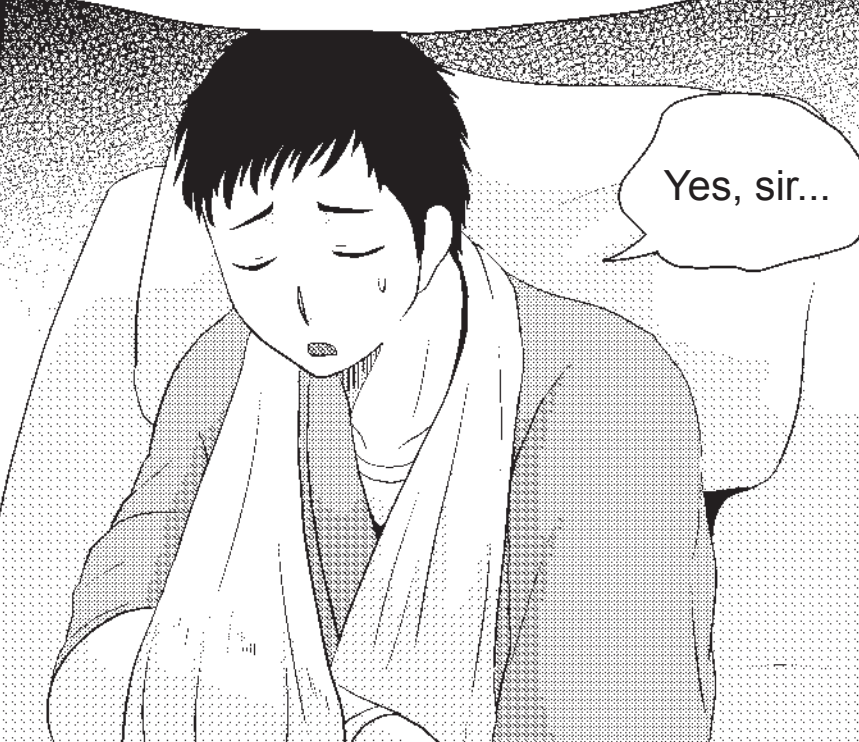
Be sure to use a brush when clearing away metal chips!

You could've lost your arm!



If a machine makes an abnormal noise, stop it and call over your workplace supervisor immediately!

Yes, sir...



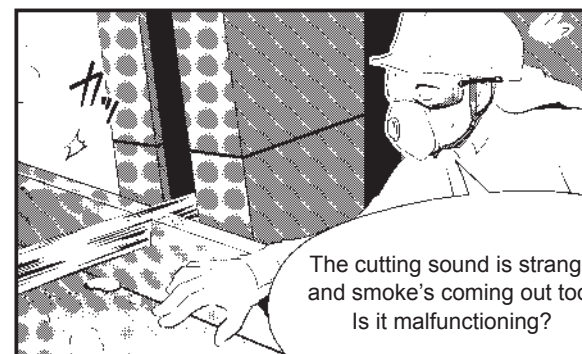
And don't leave your work clothes unbuttoned.

I'll be really careful.



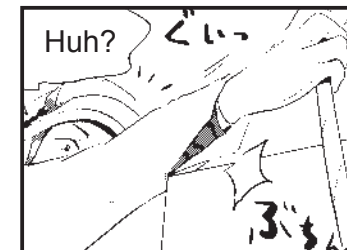
CASE 3 Summary

1 Don't touch machines before they are shut down!



Use a brush for moving parts in particular rather than touching them directly.

2 Fasten the buttons on your sleeves properly!



Sleeve cuffs can get caught in rotating parts, so be sure to fasten the buttons properly when working.

TIPS When trouble occurs working with machines

Turn off the power and stop the machine.

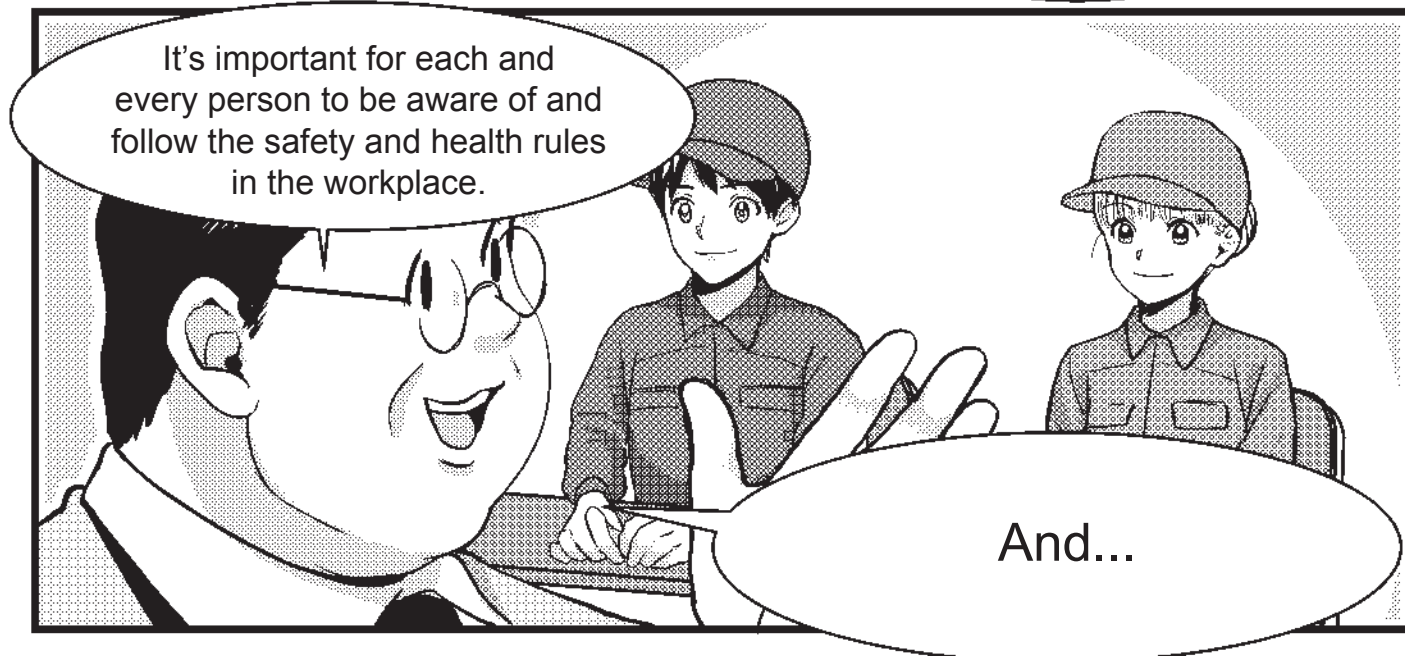
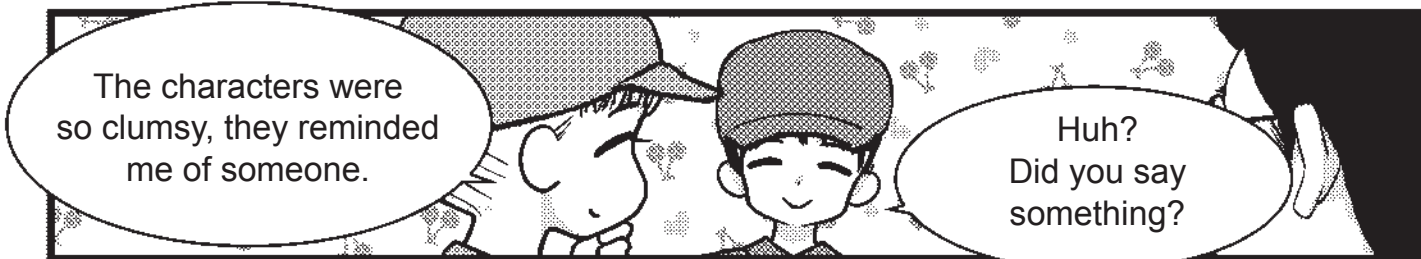
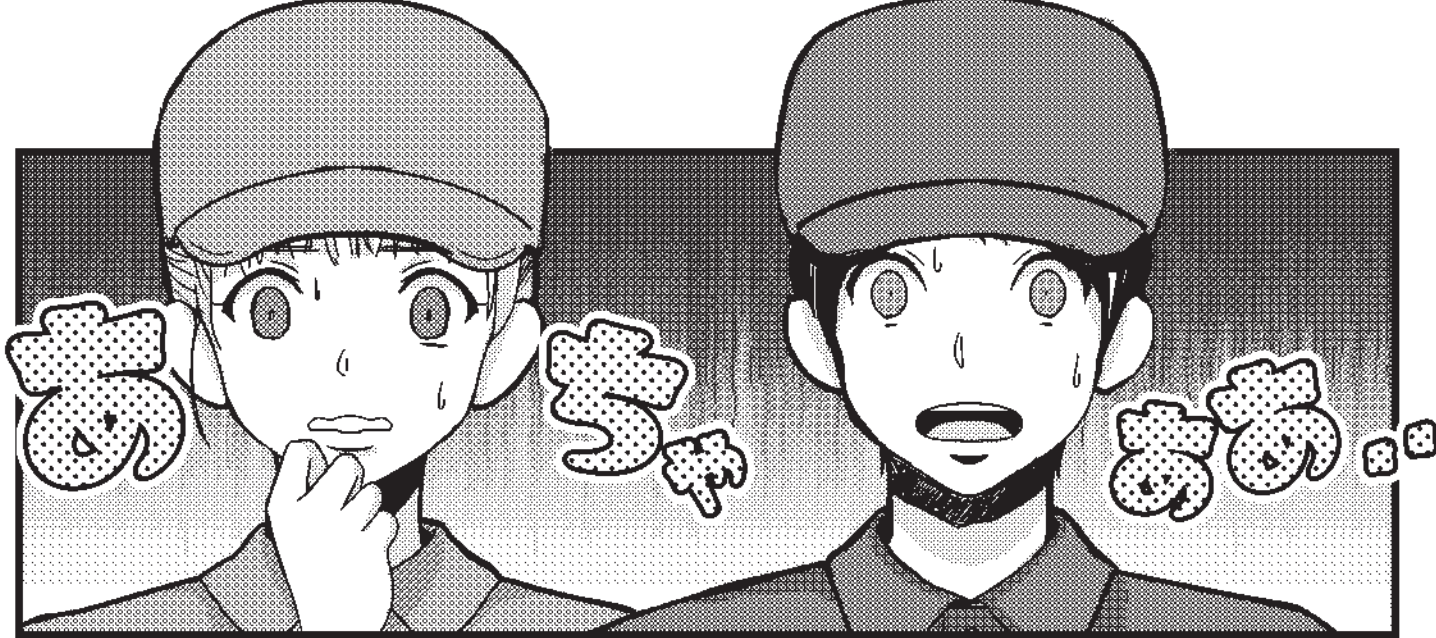


If you have trouble when working with a machine, be sure to turn off the power first.

Report it to your workplace supervisor and wait for instructions.



Don't touch the machine on your own accord. Report it to your boss and wait for instructions.



Protective and Other Equipment

If your equipment doesn't fit or if something is wrong with it, speak with your site supervisor!



Helmets

Protect your head against impact.



Adjust and tighten the chin strap to prevent it from shifting around. Replace it if it's been struck even once.

Safety goggles

Protect your eyes from flying objects, dust, and heat.



Use a pair that is appropriate for the type of dangerous or hazardous material being handled.

Gloves

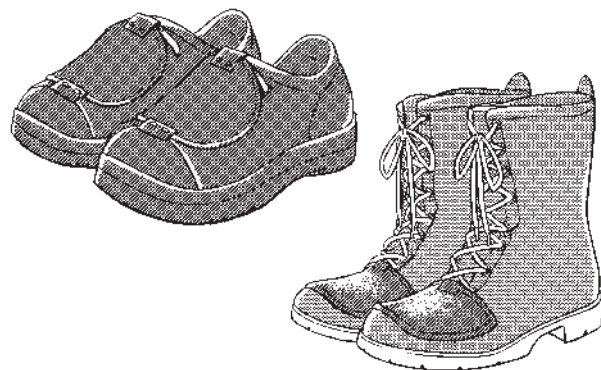
Protect your hands from heat, sharp objects, etc.



Use a pair that is appropriate for the type of dangerous or hazardous material being handled.

Safety boots

Protect your feet from heavy objects.



Use a pair that is appropriate for the type of dangerous or hazardous material being handled.

Equipment Especially Used for Welding

Respirators

Prevent health problems such as pneumoconiosis and nerve damage caused by fumes and dust from welding.

Types of Respirators

Dustproof masks



[Full-face]



[Half-mask]

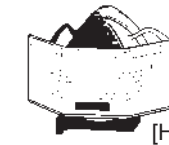


[Disposable]

Powered air purifying respirators



[Full-face]



[Half-mask]

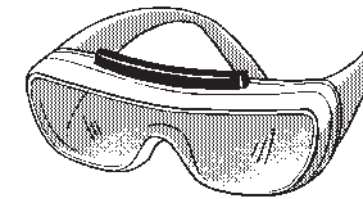
Powered air purifying respirators (PAPR)

Offer greater protection than dustproof masks and supply purified air through filters using powered fans.

- Select an appropriate mask
 - MHLW-approved
 - Protective performance suited for concentrations of welding fumes (from April 1, 2022)
- Check the fit
 - Snug against your face
 - For respirators with a facepiece, do a fit test once annually (from April 1, 2023)
- Inspect it before work
 - Dirt and deformations in the exhaust valve and facepiece
 - Clogs in the filters
 - Deterioration of the fastener

Shaded goggles

Protect your eyes from harmful rays.

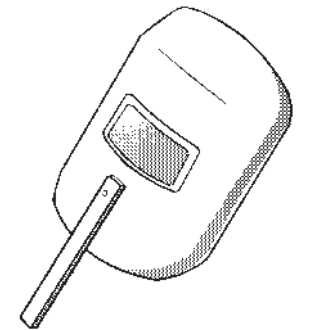


Make sure they fit tightly against your face.

Welding helmets

Protect your eyes from harmful rays and your face from weld spatter.

Select the right one for your intended use.



Foot covers

Prevent weld spatter from getting in.

Make sure they are not loose.



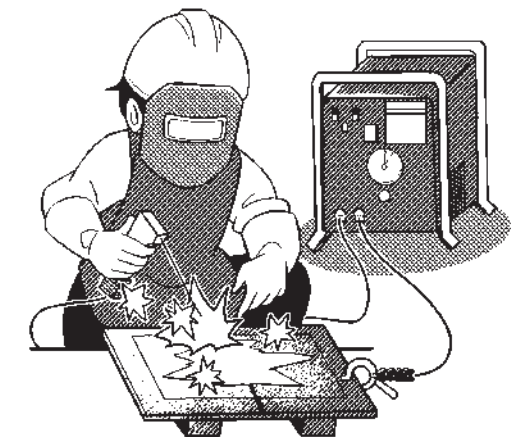
Aprons

Protect you from weld spatter and heat.

Wear them as high up as possible.



AC electric arc welding automatic shock protector



A device that prevents electric shocks. Always use one when ordered to do so by your site supervisor during AC electric arc welding (shielded metal arc welding).

Learn Through Manga

Safety and Health in Steel Work

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