

The ADVENTURES OF ZACK & MAX

VOLUME 7

**Ham Radio
To The Rescue!**



 ICOM®



Family Emergency Preparedness List

Get A Kit!

Make A Plan!

Be Informed!



List of Essentials

- Water, 1 gallon per person per day for at least 3 days
- Food, at least 3 day supply of non-perishable food
- Battery-powered or hand crank radio and a NOAA weather radio with tone alert
- Flashlight
- Extra batteries
- First aid kit and any medications your family may need
- Whistle, to signal for help
- Dust masks, plastic sheeting and duct tape
- Moist towelettes, garbage bags and plastic ties for personal sanitation
- Wrench or pliers, to turn off utilities
- Can opener
- Local maps
- Cell phone with chargers, inverter or solar charger
- And don't forget your ham radios!

For more information: <http://www.ready.gov/america/getakit/index.html>

Acknowledgements

Volume 7 of “The Adventures of Zack and Max” takes us on a local emergency communications drill. Community service is an important part of ham radio. Preparing for an emergency is necessary, but it can also be fun!

Icom America extends its appreciation to the many younger members of the Lake Washington Ham Club (K7LWH) in Kirkland, Washington, and to the club's leaders and supporters – especially Dave Condon (K17YP), John Schurman (AA7UJ), and Conrad Thompson (N7DUO).

A big thanks also goes to Dan Smith (KK7DS), creator of the D-RATS software. Dan gave plenty of input, supplied many screen captures, and allowed the use of his software's name. Plus, he's made this ideal-for-emergency-communications software tool.

Kayoko Nakajima, an amazingly talented cartoonist, once again brought Zack, Max and all the other characters to life. Thank you!

And finally, thanks to all those at Icom America who lent their call signs, time and skills to help create this comic book. A special thanks to Dave Kruzic (KC7SFN) whose support and guidance throughout this series inspired us all, and to Ray Novak (N9JA) and Maureen Blomgren (KD7QEZ).





Mmmm, I love a good latte.

Yeah, me too.

With extra Chocolate!



Whoa! Mady, look at this!

What is it, Zack?

A big earthquake just struck in the South Pacific. 7.6!

Oh, no! Any reports if anyone was hurt?

No, not yet.

Mady, do you think we'll be ready for something like that if it happened here?

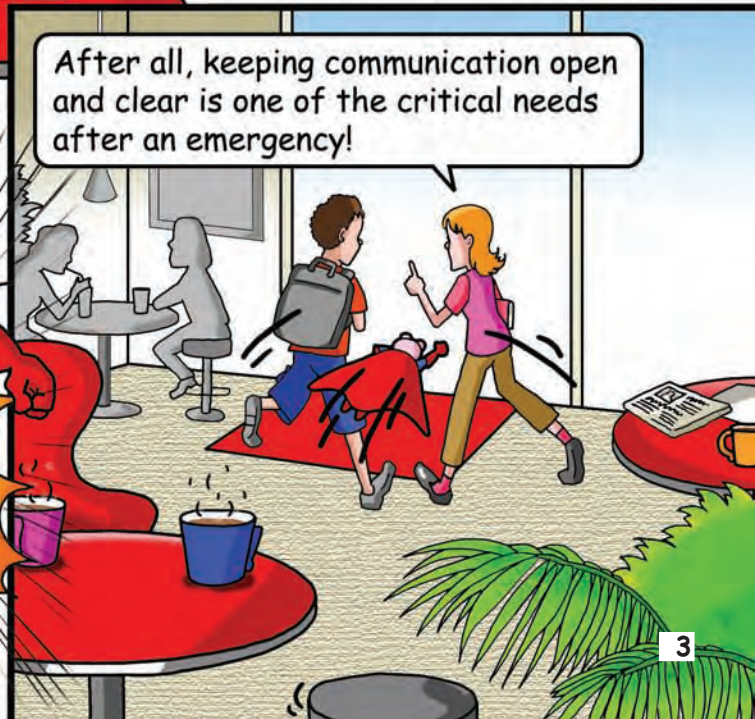
Well, sitting here drinking coffee all day isn't going to solve anything. Let's get going!

Going? Where?

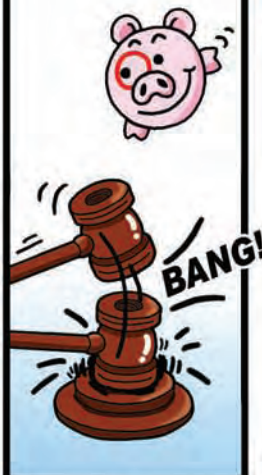
Our ham club is meeting this afternoon. Let's go ask what we can do to help out!

After all, keeping communication open and clear is one of the critical needs after an emergency!

Ham Radio To The Rescue!



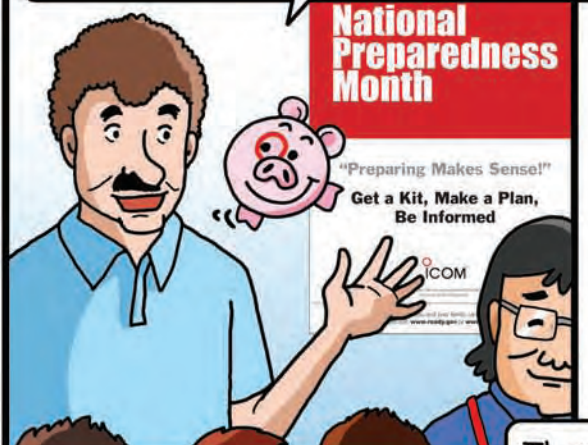
At The Meeting



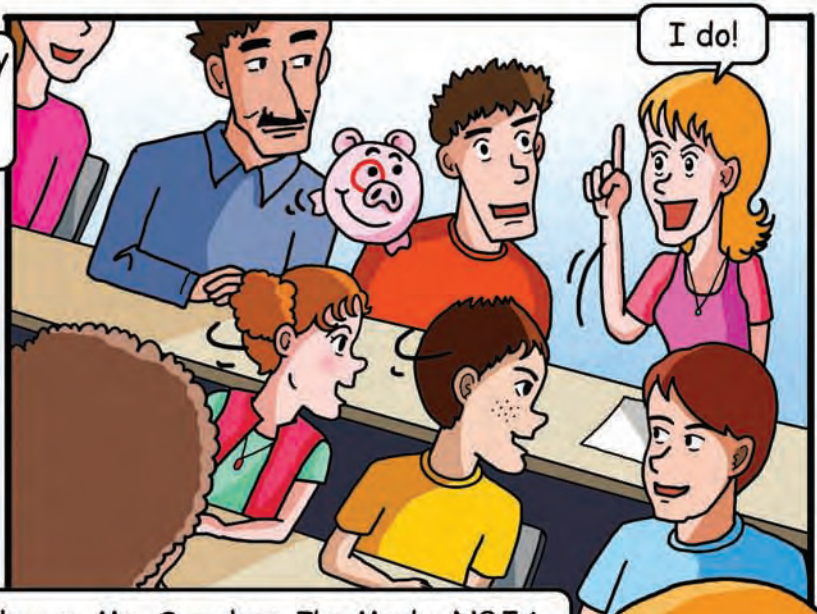
The meeting will now come to order.

Later

...and now the meeting is ready to turn to new business. Does anyone have anything new to discuss?"



National Preparedness Month
"Preparing Makes Sense!"
Get a Kit, Make a Plan, Be Informed
iCOM



I do!

Go ahead, Mady. Please let others know your callsign before proceeding.

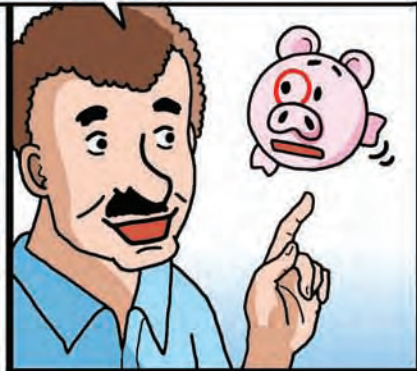
Thank you, Mr. Speaker. I'm Mady, N9JA. Today a large earthquake struck in the South Pacific. We were wondering if our community is as prepared as it could be for an emergency, and what we as amateur radio operators can do to prepare.





Right you are, Mady. As you know, the Seattle area is rich in potential disasters — earthquake, tsunami, and volcanic eruption are our three largest concerns.

There are emergency agencies standing by ready to assist if disaster strikes. And we, as ham radio operators, are ready to assist them.



Hams have the radios and know-how to communicate across town, state, or even around the world!



We are scheduling a mock disaster for our next club meeting. We'll practice how we interact with the first responder community and with hams from other areas.



For now, remember to make your own homes emergency ready. You'll see on today's meeting handout what items to have at home in your emergency kits.

Can you come over to my house after the meeting to help me get things organized and ready for our mock disaster?

Sure! I can just imagine you getting organized. It will be fun to see that happen!



Later At Zack's House

UGH! Zack! Why don't you ever clean your room?!

Hey everything's right where I can find it!

This is a JUNGLE! I hope there aren't any wild animals in here!

Oh, never mind. Think family is ready in case there's an emergency?

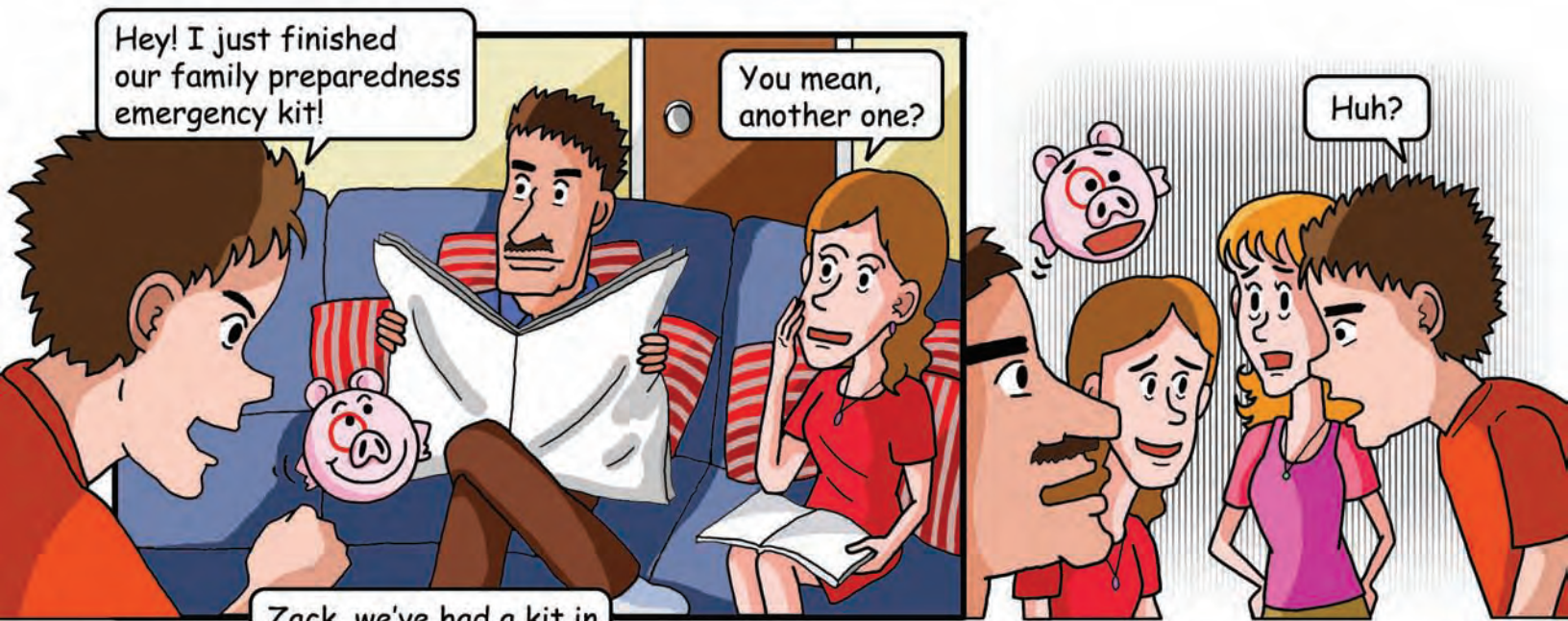
I think we're like everyone else - in denial that an emergency can happen here. But that ENDS TODAY! We're GETTING READY!

THERE! Everything we need for our 3 day emergency preparedness kit is ready! Canned food, bottled water, flashlights, first aid kit, AM/FM radio, batteries, ham radio....

Now I'm off to talk with mom and dad about our family communication plan!

I don't know how...he does it....

Are those chocolate bars?



Hey! I just finished our family preparedness emergency kit!

You mean, another one?

Huh?

Zack, we've had a kit in the bottom of the hall closet forever... You've never noticed it?

Uh...

THAT hall closet?! I wonder if the kit has chocolate in it?

That's OK, it's time to review it again, anyway. Where do you want to put the second kit?

How about in the garage? We should have something in the car too!

Great idea!

And Zack, do you remember where our emergency rendezvous point is?



Oh, I think it's time to go...

Wow, I never realized my parents were so organized.

Shocker. Say, Zack if a disaster strikes, how will WE get in touch?

Fire up the ol' 2-meter ham radio handheld of course! We could use our cell phones, but the service will probably be very busy—if its working at all!

Our usual frequency?

Yep! 145.49 MHz

See you. I'm going home and make sure my family is also emergency ready.

Good plan! Don't forget, a month from today we've got our mock disaster drill!

I'll be there~!

Ready to Help!

One Month Later, The Night Before The Disaster Drill

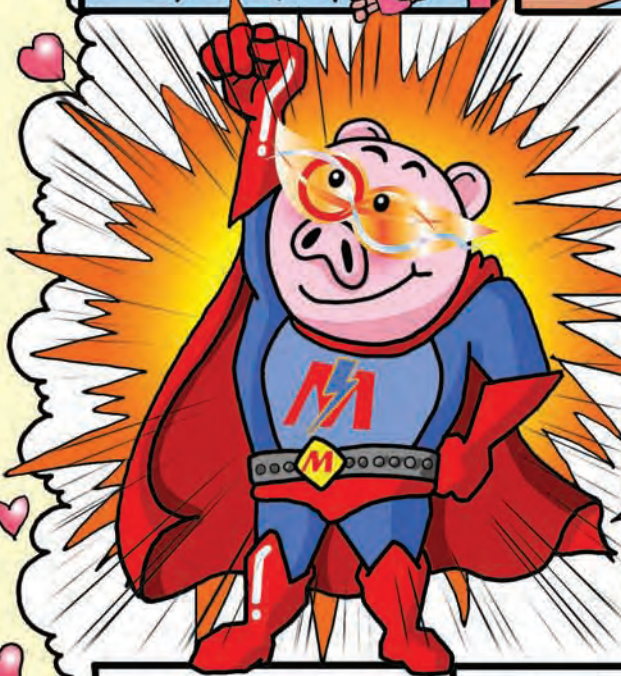
Warning!

Due to an earlier earthquake, a Tsunami Warning has been issued! Please stand by for further updates. Get to higher ground or shelters right-away!



Hurry everyone! Get your stuff! Let's go! Mady, Get the radios!"

What about those people out there on the raft? Who'll save them?



Yay! Yay! Max, you're our hero!

Zack, this is N9JA, we're moving inland now. Are you OK?

I can't get a UHF message out to more people because of our remote location. If only I had access to a repeater...



Yay, Max, we're getting through! Good Job!

Hooray!



Sweet setup!

It's a world-wide HF set up in case of a major disaster.

I'm ready for anything...including chocolate!

Yup, HF! You never know how big an area will be hit. Remember Hurricane Katrina affected over a dozen states!

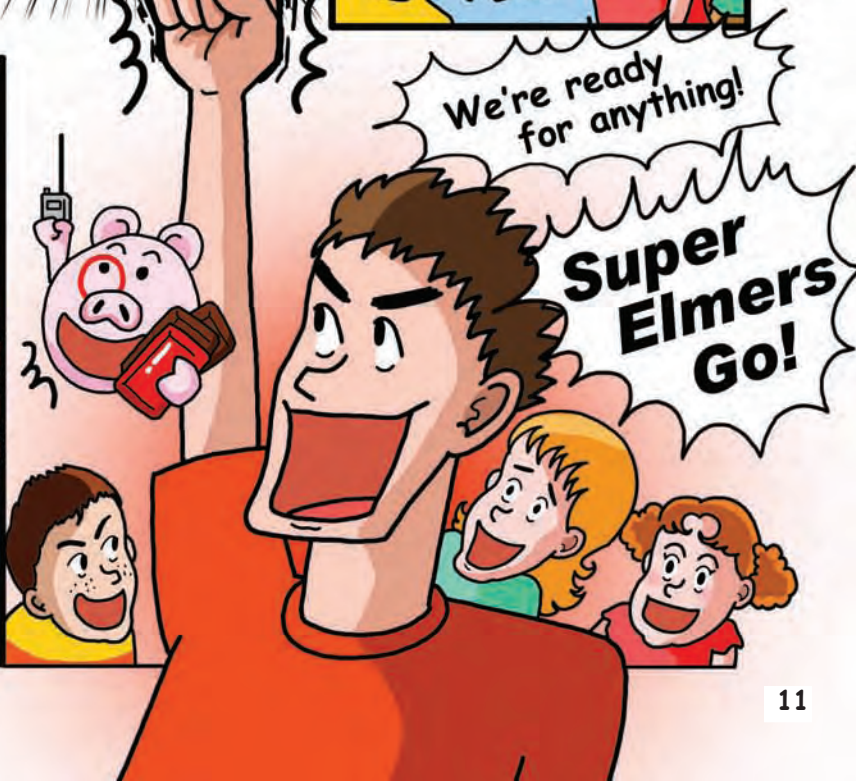
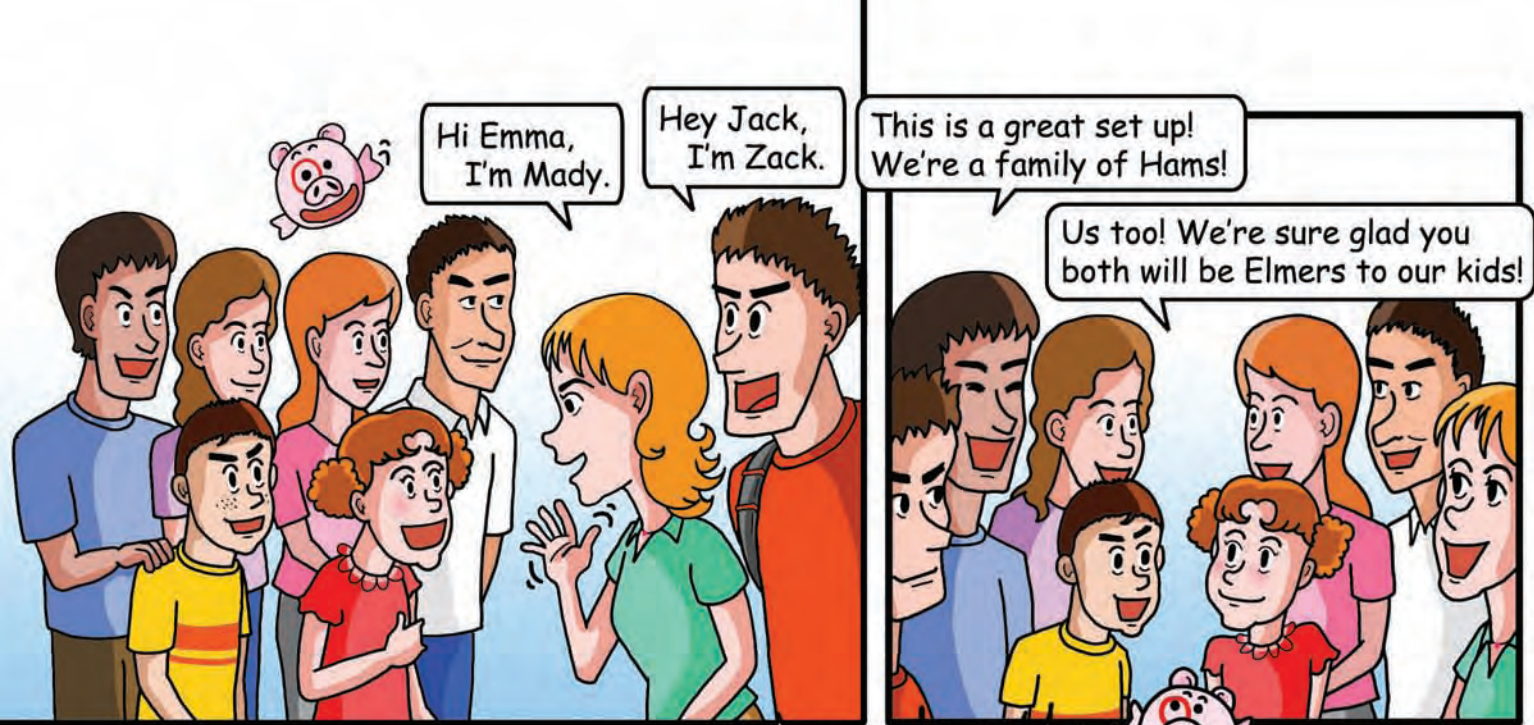
Amateur radio is used locally, regionally and internationally.



We will use a buddy system today. You will work with your buddy at the stations. Don't forget to be a good Elmer*. I'm sespecially talking to you two: Zack and Mady!

Zack, I'm pairing you with Jack. Mady, you'll help Emma. They're right here with their parents.







THE DISASTER DRILL Meeting Starts NOW!

ATTENTION!

Welcome! I'm John, AA7UJ and your leader for today's drill. I'm a member of ARES* where we work together with the local government to help maintain communications in case of disaster.

Let's break up into teams. Some of the radio stations are already set up.

But as part of the drill, some stations will be setting up from scratch to give us even more practice.



Whoa! I want to do that!

I've got great news. We're with a team that is going to start from scratch. We're at Station #5.

Remember, in a real emergency the power grid may fail. We create our own power right here from these generators, batteries and solar panels. Remember during set up, **SAFETY FIRST!**

OK...

Where did you get that?!

Get ready! You should be up and running in 15 minutes!

*ARES stands for Amateur Radio Emergency Services. Local ARES branches specifically handle field communications, particularly during emergencies. ARES volunteers offer community services that polish their emergency communication skills.



Hi! I'm your team leader, Ken, KE7LYK. I see here we've got Zack, Mady, Emma and Jack....

and Max!

Hear the generator going in the background? We're generating about 2,000 watts of power.

Zack, I want you to pull out the dual band 2M/70CM vertical antenna. Everything is clearly marked. Mady, Emma and Jack, help Zack set up the antenna over here where it is clear and level.

Take the longer poles and snap them together. They form your mast. Then attach this antenna piece I have here to the mast. This cable will run down inside the tubing... Then, we'll attach everything to the base.

Don't we need to secure this?



Yes! In the bag there are guy wires, spikes and hammers. We've got to set up and get on the air fast, and then we'll improve the site later.

I think we're ready for the radials now...

They snap right on, nice and snug.

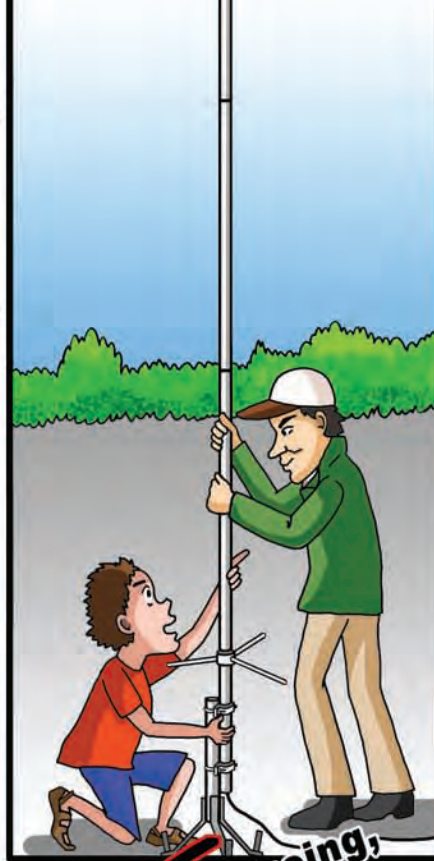
That was easy! We've got the mast and antenna connected!

They're right here in the bag....

We've got everything put together over here...



All right everyone, bring that mast over and let's get it into place and clamp it to the base. Then we'll secure it all with the guy wires.



Great! Now, let's get the extra coaxial cables out! They are all labeled as to what goes where.



So you have all of your equipment marked and ready.

That's right, Mady, the best set ups happen when you are prepared. All equipment should be in good working order and well labeled.



Make sure the cable is laid on the ground right to the radio....



I see a small table in the back of the van, do you want that next?



Yes, please, get the table out and get the radios out too!

Good, Jack! This one plugs in right here in the back....



And here's the power cord! I had it all preset and ready to go!

And guess what's next?





Push the power button **ON!**

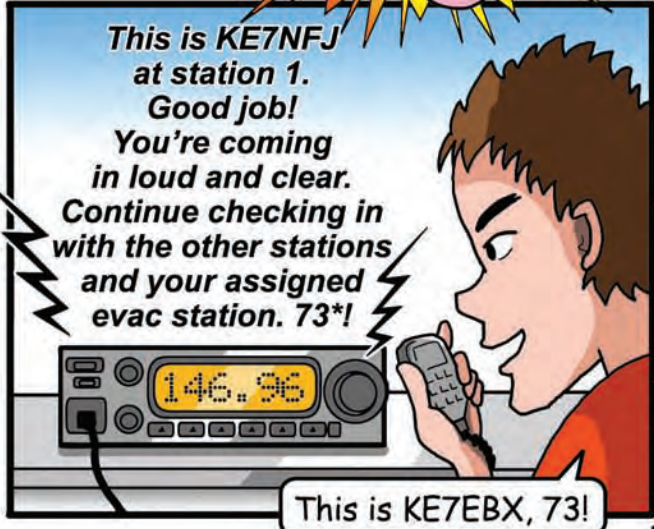
We're on the air!

Now let's settle in and get working.

We should be right 146.96 MHz here...

This is KE7EBX at station 5 checking in, over.

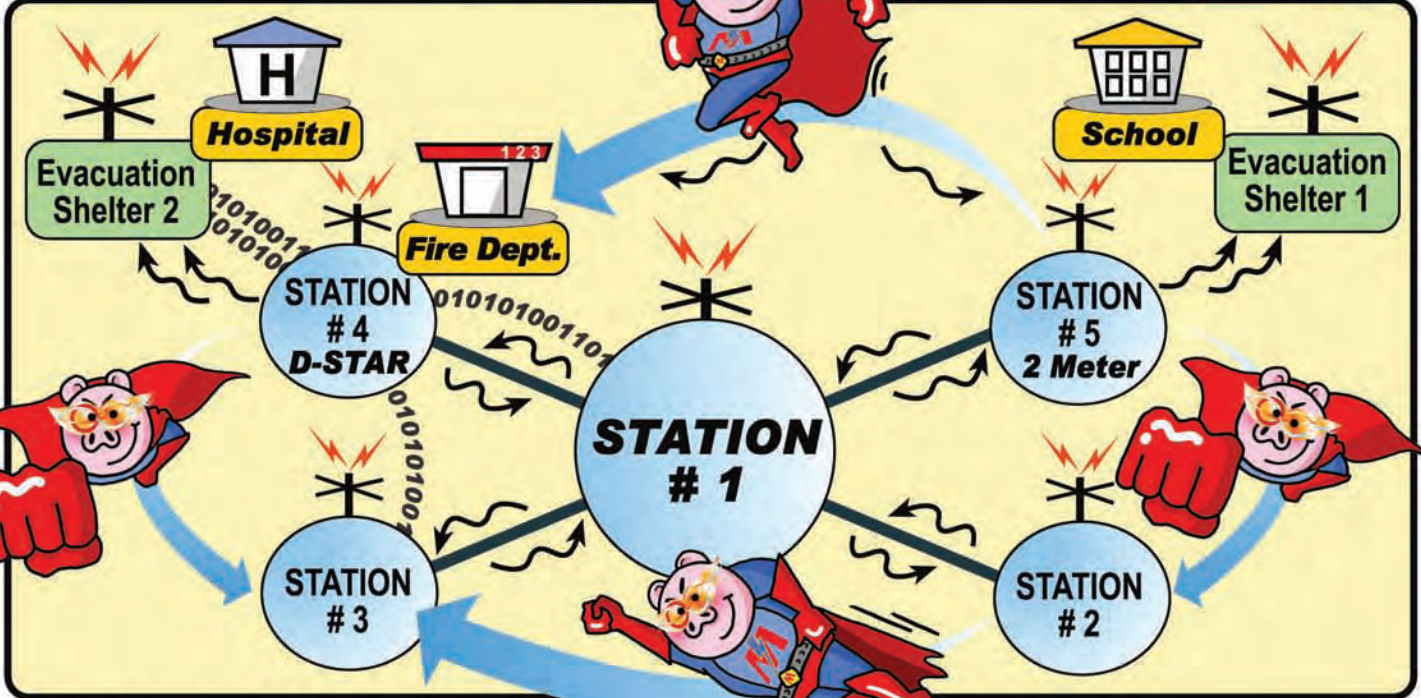
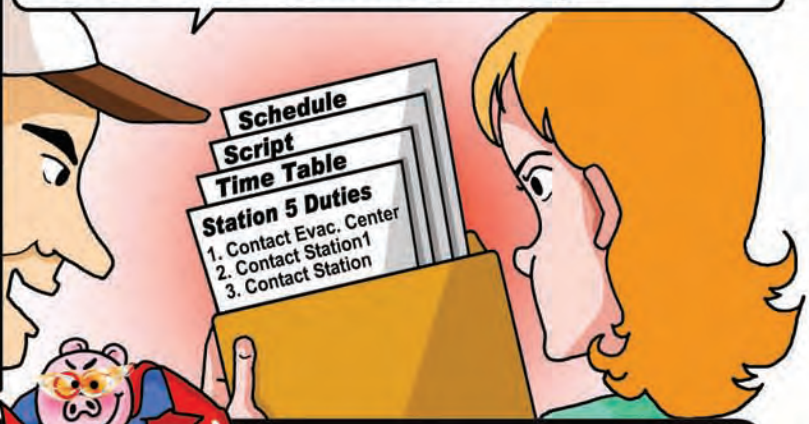
That only took 9 minutes!



This is KE7NFJ at station 1. Good job! You're coming in loud and clear. Continue checking in with the other stations and your assigned evac station. 73*!

This is KE7EBX, 73!

Our assignments are in the envelope. Each of us will take turns monitoring and contacting everyone in order. They will also be contacting us.



*Using "73" at the end of a call is a friendly way to say good bye.

Emma, we have a script here to help you along. Use your strong, clear voice. I'll help you practice.

I'm going to help her get on the air!

Zack, my laptop is on the front seat of the van, please go get it. We'll keep monitoring.



...and listen to how we handle it and you'll do fine.

Sure! Come on, Jack, let's get the PC set up.

Now Emma, I'm going to call the evacuation center and let them know we are set up...listen carefully.

This is KE7LYK calling Central Evacuation Center; this is station 5 with the City Emergency Drill...over.

Station 5, this is KDYQDZ Central Evac Center. Your signal is coming in clear, over.



I'm ready.

Go Emma!



Loud and clear!

You're loud and clear here. Do you have any priority messages at this time? Over.

We'll be checking back throughout the day for status updates, over.

...And you will be talking today with our younger hams too, over.



Roger that, over.

No priority messages at this time. CERT* volunteers are all in place, over.



That's what it's all about; include everyone in the community in this drill.

*CERT: Community Emergency Response Team

Thanks so much we'll be checking back later. This is KE7LYK signing off for now, 73.

Emma, you and I will do the next call...

And we'll practice while Zack and Jack help set up your computer!

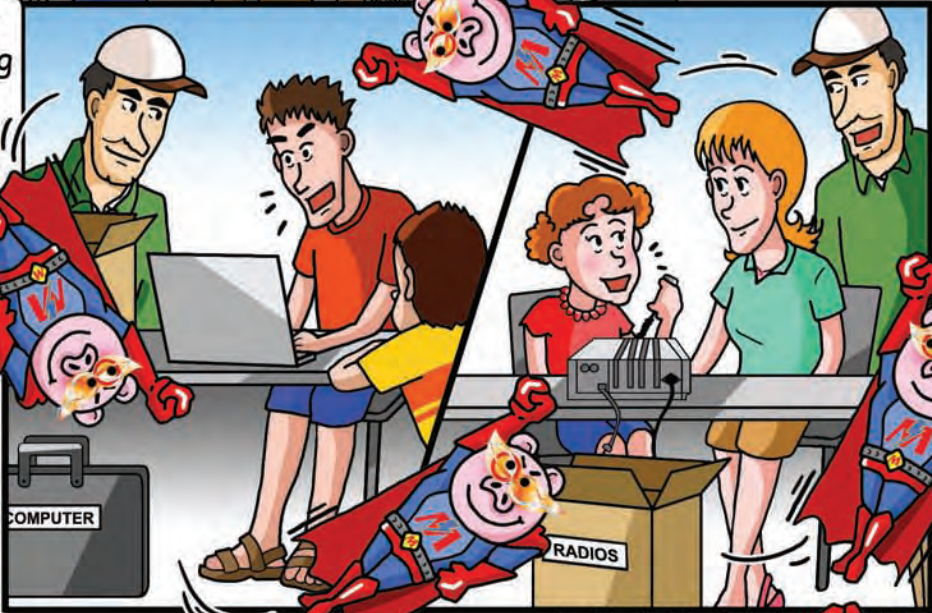
Did you miss us?

And we'll be ready!

We're back! Got everything!

This is KD7QDZ. 73's to your team.

OK, set the laptop up over here. Emma and I are going to practice getting more confidence talking on the air. Come on, Em!



OK, all set here!

She's ready!

I'm exhausted!

CQ CQ. This is KD7QEQ calling Central Evac Center. Again, this is Station 5 at the City Emergency Drill calling, over.

This is KD7QDZ calling KD7QEQ, You're coming in loud and clear. Over!

146.96

Do you have a station update for us? Over.

Yes, to repeat: your CERT people are there. Blankets for 20, cots for 10, more coming, no police or fire calls, over.

That's right, over.

Yes, Station 5 at 10:00 ten-hundred hours our entire CERT personnel are here, and blankets for 20, cots for 10. More are coming. No calls yet from police or fire, over.

This is KD7QEQ at Station 5, monitoring, 73!"

Wow! Just like a pro!

Now that you've done the first call and helped out.... would you guys like to go over to the D-STAR station and see how they're doing? I have another group that can come in and take your place.

That's digital radio guys, let's go!

Yay!

This is KD7QDZ standing by, listening.

I'll lead the way! INTO THE FUTURE!



**D-STAR
Station #4**



Zack, this station looks different.

This is digital.

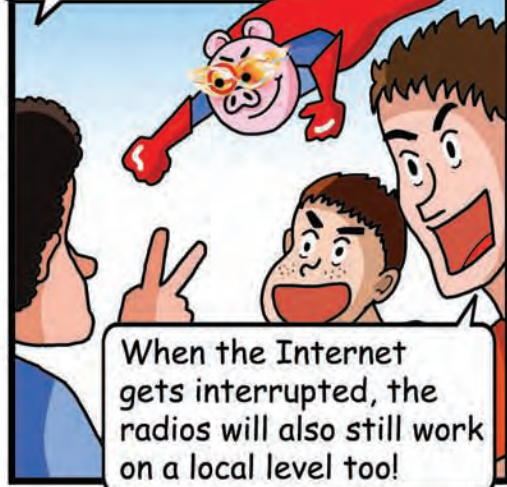


Hi kids! I'm Dan, KE7EBJ. Ken said that you were coming! Let me show you digital radio.

With D-STAR you have two modes: Digital Voice and Digital Data. DD is available on 1.2GHz and DV is available on 1.2GHz. DV is both simultaneous voice and data on a narrow 6.25kHz signal.



We can use the Internet to connect to other systems around the world.



When the Internet gets interrupted, the radios will also still work on a local level too!

Dan, show them the antennas that we're using.



This is just a little mag mount dual band antenna. It's used for the 2 meter radio. We also have at this site a tri-band 2 meter 70 centimeter, and a 23 centimeter antenna that the high speed uses.



mag mount antenna

tri-band antenna

In a real world emergency it's important to get accurate information through. D-STAR is a way to get a LOT of accurate information through!



Here's the evac center's laptop. We're dropping some files on his hard drive right now. Dan is going to call and let our local EOC* know what we're doing.

This is KC7SFN, calling KD7QEG, we've dropped the files. Over.

This is KD7QEG, thanks for the files, I see them, 73.

This is KC7SFN, 73.

This must be a big help for the emergency manager...

Yes, it empowers people out in the field, base station operations, and those at the command center.

Empowerment

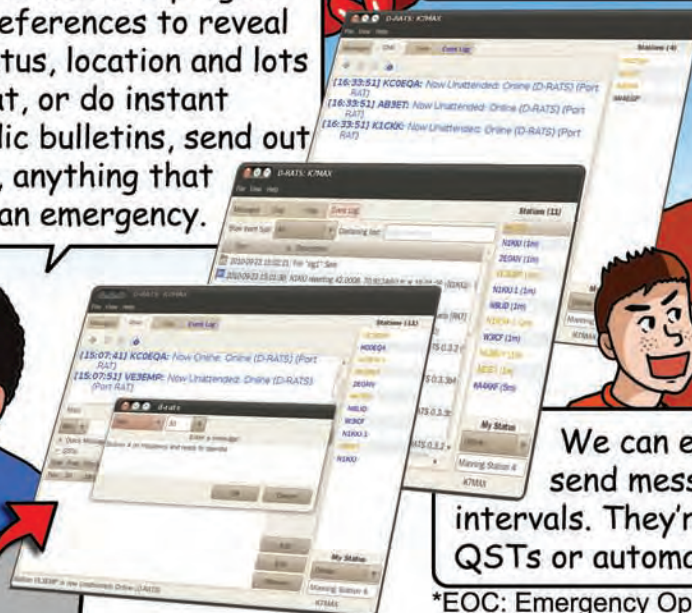
We've read that you can do chat and pass along pictures too right?— with something called "D-RATS"....

What?! A RAT?! Must be a digital one....

Yes! It's a free public safety application that you can use with D-STAR. We are using it right now on this laptop. D-STAR is an open protocol.

How does it work?

Well, once you download the program and set up the preferences to reveal your call sign, status, location and lots more, you can chat, or do instant messaging, periodic bulletins, send out reports, weather, anything that will be needed in an emergency.

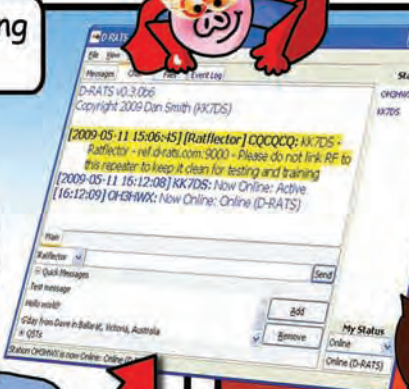


We can even set it up to send messages at regular intervals. They're called automatic QSTs or automatic beacons!

*EOC: Emergency Operations Controller (emergency manager)

What are you sending out right now?

Will you be sending any pictures?



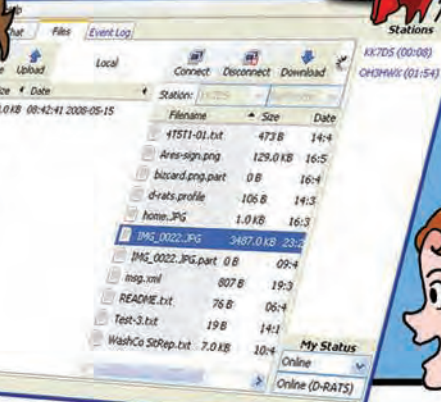
We've just changed our status, letting everyone know you are here and also checking on our evacuation center's status.

Yes. Let's run a test and take your pictures and send them on to the Evac Center.

Let's do it!

Evacuation Center

I'm sending it all!



We can also use the ID-1 I have here and send this data like it would be at an office, IP to IP.* Or from this radio I can FTP** my files from my computer to the "local" fileserver.

So, let's say we're here in Seattle...

...and we need medications

...and food and blankets

...and supplies



Yes guys, we can send a request directly to the D-STAR radio operator in another area that we know might have more resources...

I see that there is also an event log tab! That's convenient!



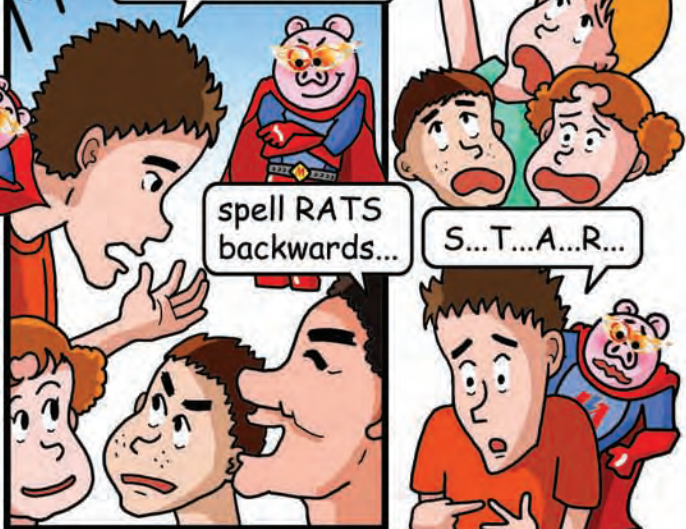
That's Empowerment!



How do we see who else is on-line and their status?

Right click somewhere in the Stations window and a sub menu will display. If I click on Ping All Stations, a ping will go out and all stations that are on-line will answer back. Now watch, if I hover the mouse over their callsign, their status and other information will be displayed.

But one question, why...D-RATS?



S...T...A...R...

*IP: Internet Protocol
**FTP: File Transfer Protocol

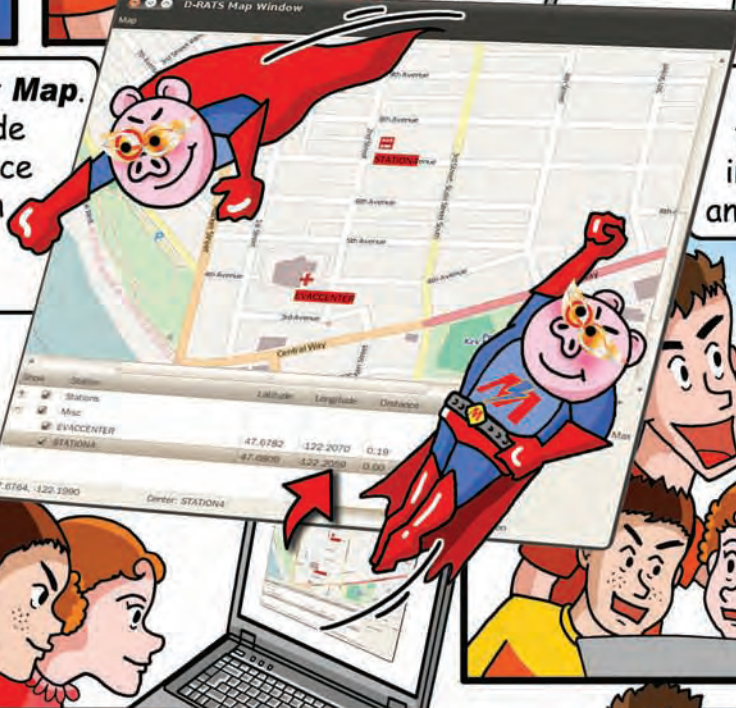
Is there a map function we can also use?



Yes, let's say you want to request the position of a remote station. We can do that. Just right click on one of these callsigns in the Stations window, a sub-menu will come up and now click on **Request Position**. If they are online their coordinates are broadcasted to all connected stations.*



Go to **View Menu** and select **Map**. The station name, it's latitude and longitude and the distance and direction to that station from where we are at right now will show up.



Let's all take turns entering in information and making calls!



Two Hours Pass By

Attention: 5 minutes left! Everyone proceed to the main station after wrapping up! Meeting in 15 minutes.

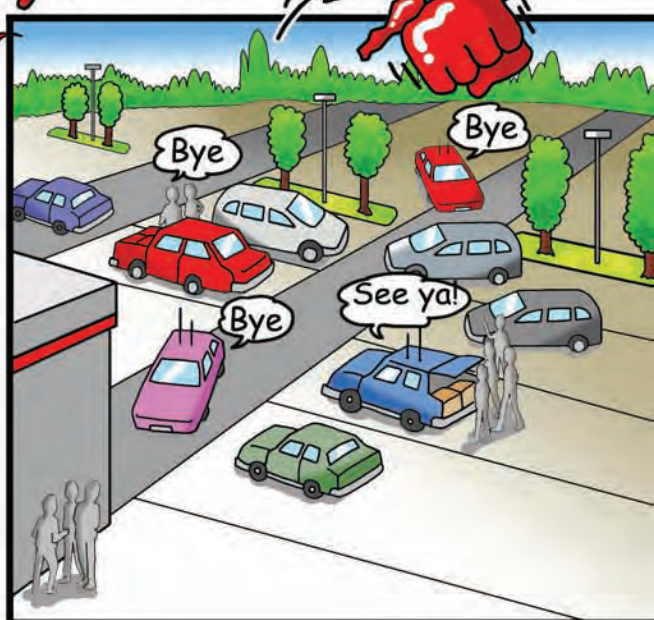


No, he just needs some chocolate!

*The station has to have its coordinates set up in the GPS part of the program.



Preliminary results were very positive; we'll go over the results in more detail and report back at the next club meeting on how to make things even better.



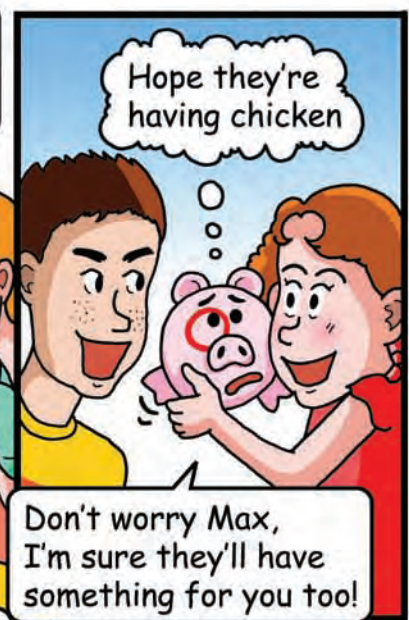


My dad would like you all to come over for a post-emergency drill BBQ!

Heck yeah! We're starving!



My Dad's cooking.... Now you'll see a real emergency!



Hope they're having chicken

Don't worry Max, I'm sure they'll have something for you too!



Later

That meal was great! Zack, your dad's a great cook.



Taught him everything I know!



Cool room, Zack

Um... it doesn't always look like this...



Kids, Zack has had a very long day and is obviously not feeling like himself. It's like space aliens have taken over his brain...

Thanks! I think it's important to always keep a clean room, don't you?

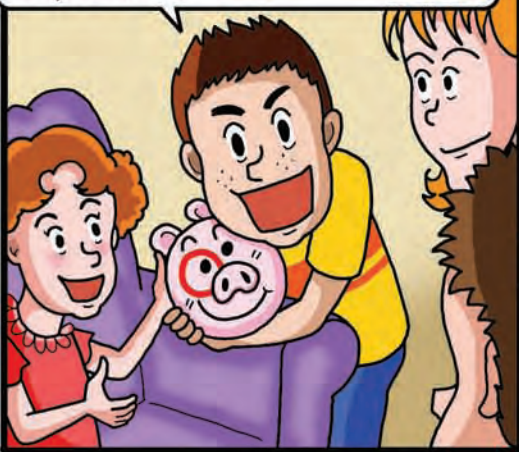


So tell us about Max.

Max and I have been hanging out together as long as I can remember. He's helped me learn a lot about ham radio along the way.



Wow, I've never had a friend like that. I wish I did so I could learn as much about ham radio as you have.



Well, Max is a great friend. And you know what? In fact, I'd appreciate it if you could watch Max for me...



...But you have to promise to take VERY good care of him, every day, and feed him chocolate often.



Gee, think I could borrow Max too?



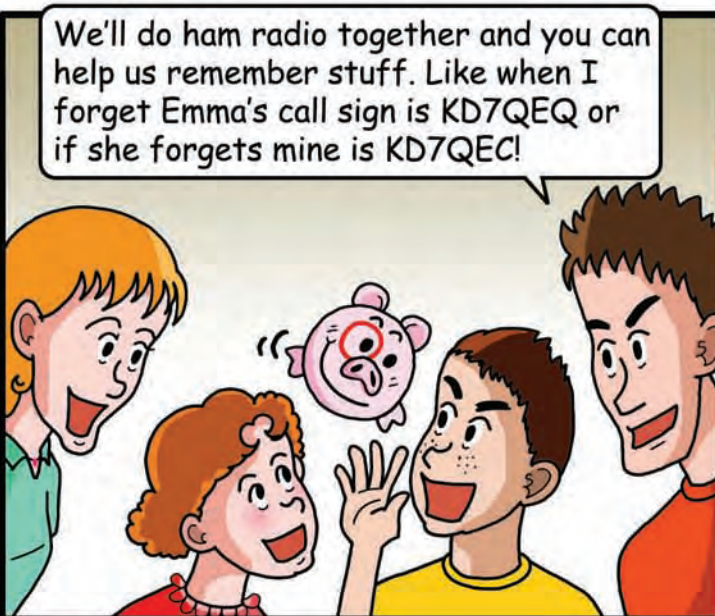
Yeah! Let's learn more about ham radio together!



We'll watch him! Everyday! He won't get lost with us!



Sure! The more people taking care of Max, the better. And he'll take care of you in return! But be careful, he has a habit of getting lost!

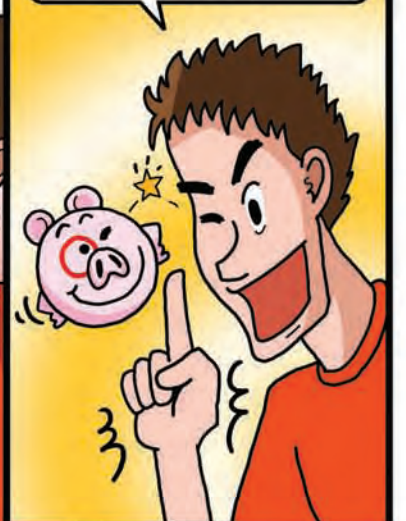


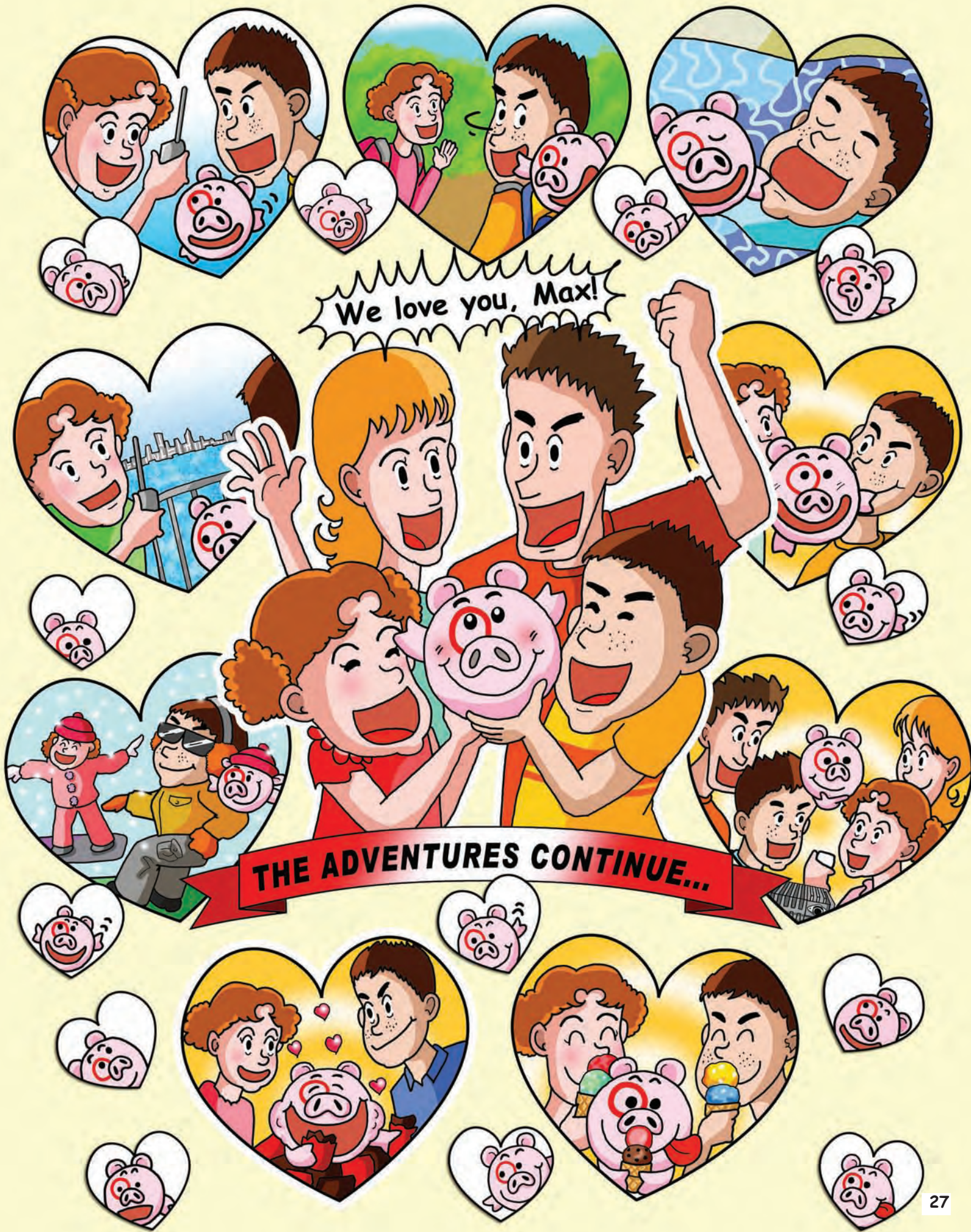
We'll do ham radio together and you can help us remember stuff. Like when I forget Emma's call sign is KD7QEQ or if she forgets mine is KD7QEC!

That's so cool, Zack!



Max is in good hands. Another generation of hams lives on!





We love you, Max!

THE ADVENTURES CONTINUE...

