

# TSUNAMI PREPAREDNESS



A GUIDE BY AND FOR CHILDREN

**Produced by**



**Rebuilding Schools and the Lives of Children After Natural Disasters**

**[www.happyheartsfund.org](http://www.happyheartsfund.org)**

**and the children and teachers of**

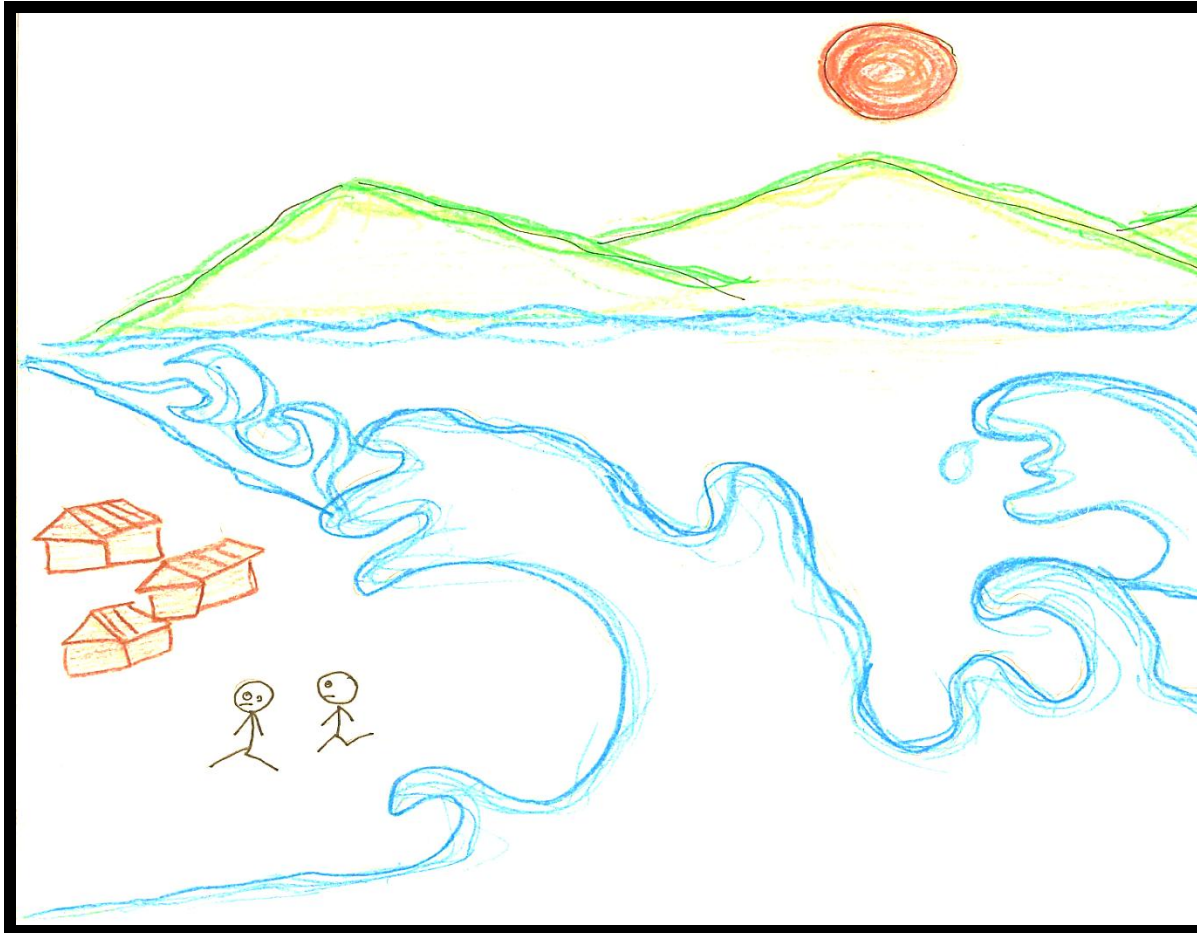
**Chao Thai Mai School**  
**Thai Muang, Phang nga, Thailand; and**

**Wat Pattikaram School**  
**Thai Muang, Phang nga, Thailand**

**Copyright 2012 Happy Hearts Fund**

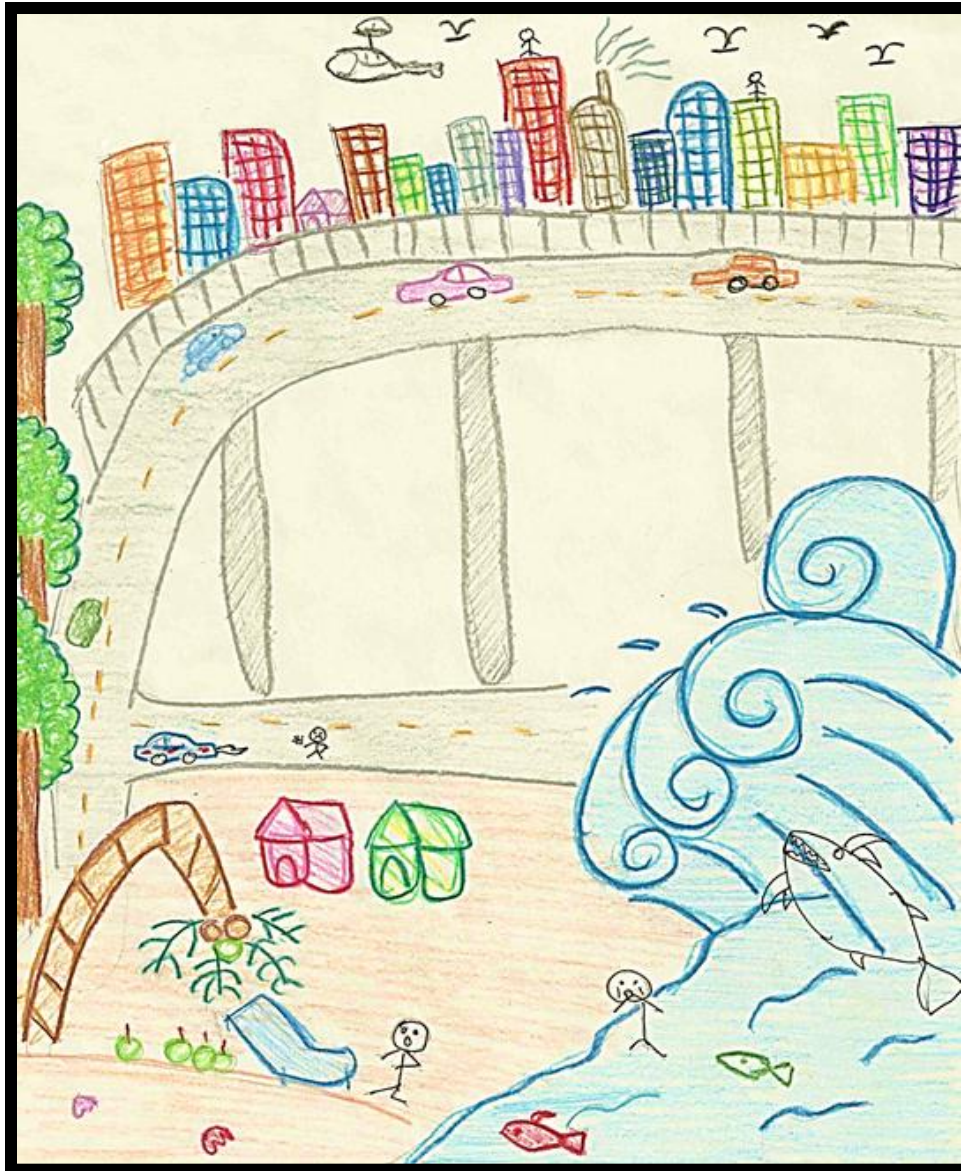
**Contact all of us at [info@happyheartsfund.org](mailto:info@happyheartsfund.org)**

# WHAT ARE TSUNAMIS?



**Tsunamis are  
extremely  
large,  
broad,**

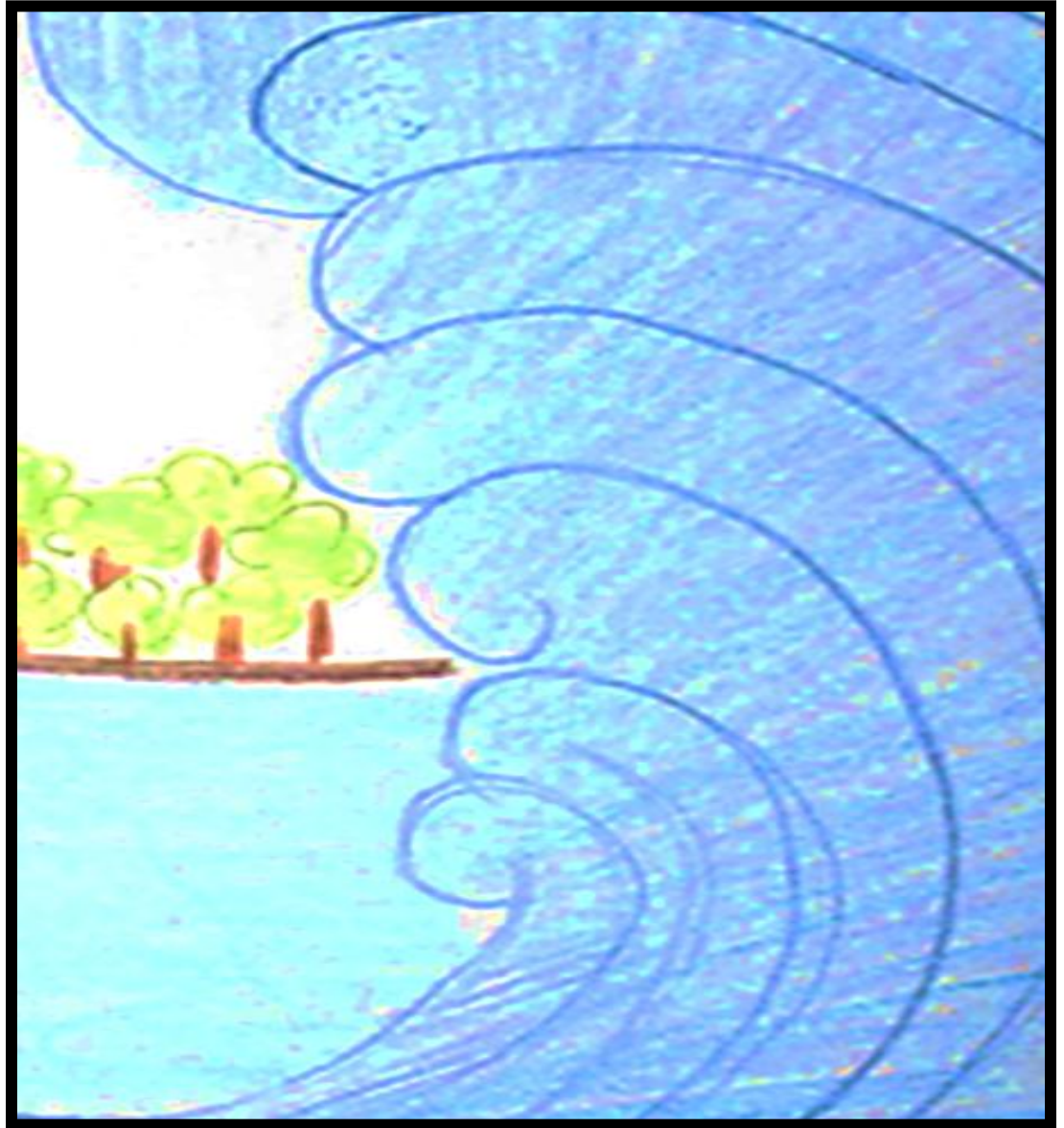




**dangerous,**



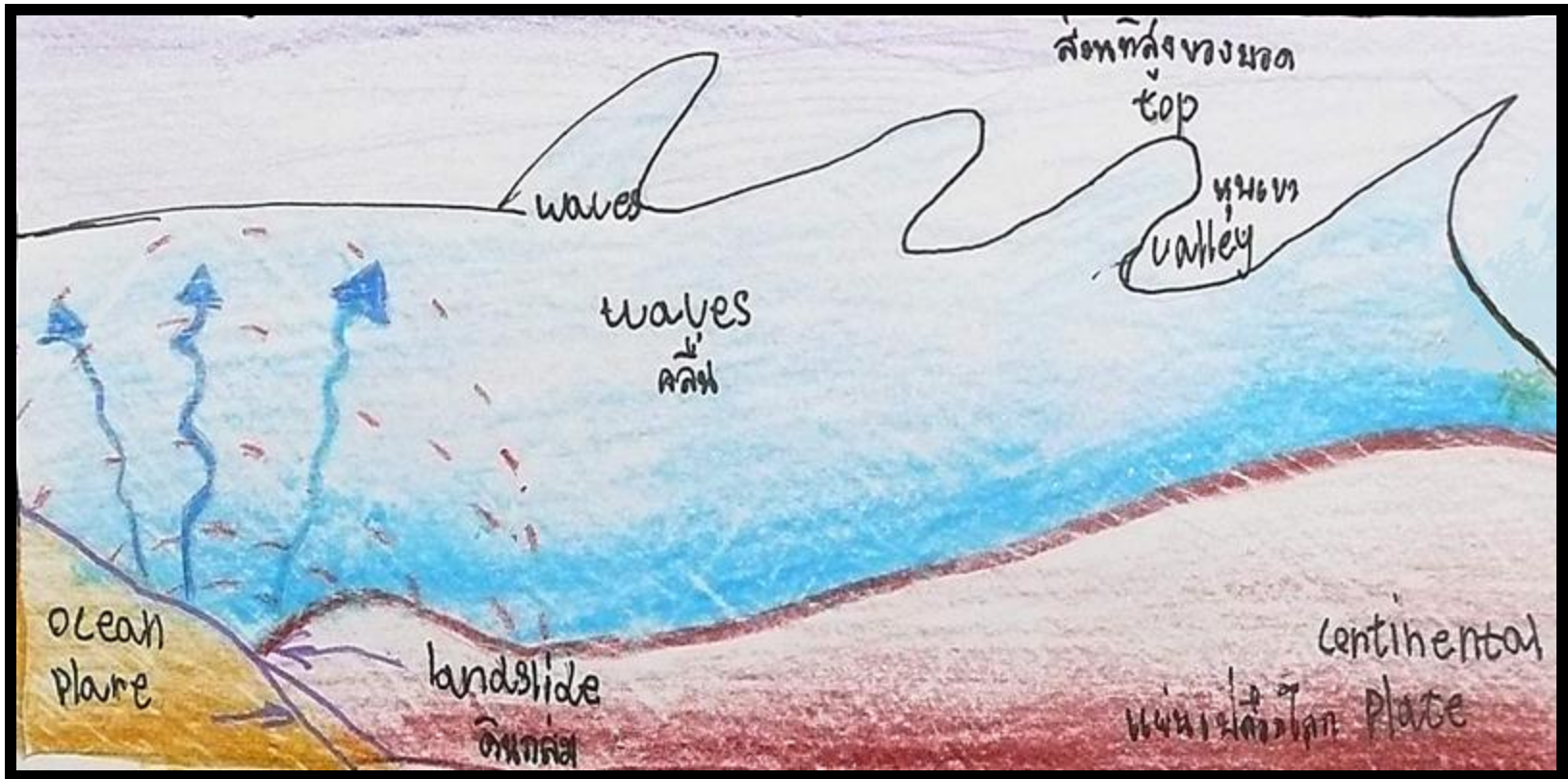
**and  
powerful  
waves**



**that  
can  
cause  
great  
destruction.**



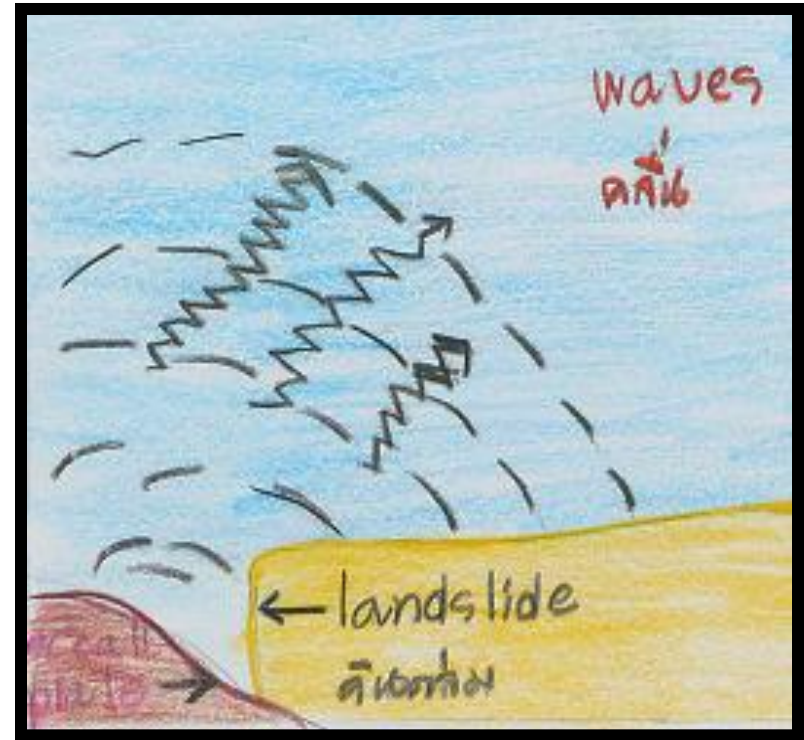
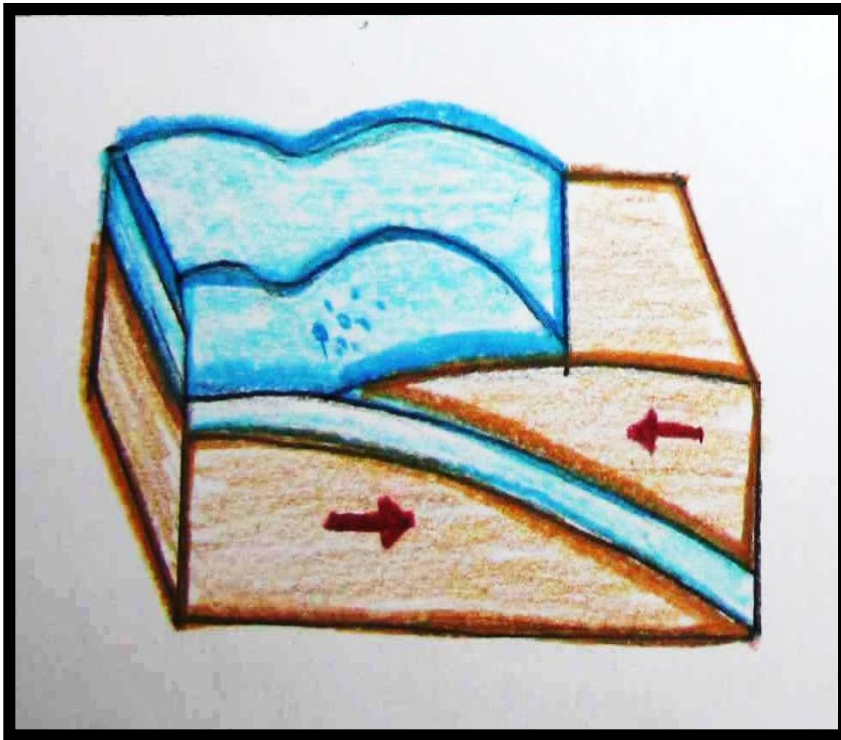
# WHAT CAUSES TSUNAMIS?



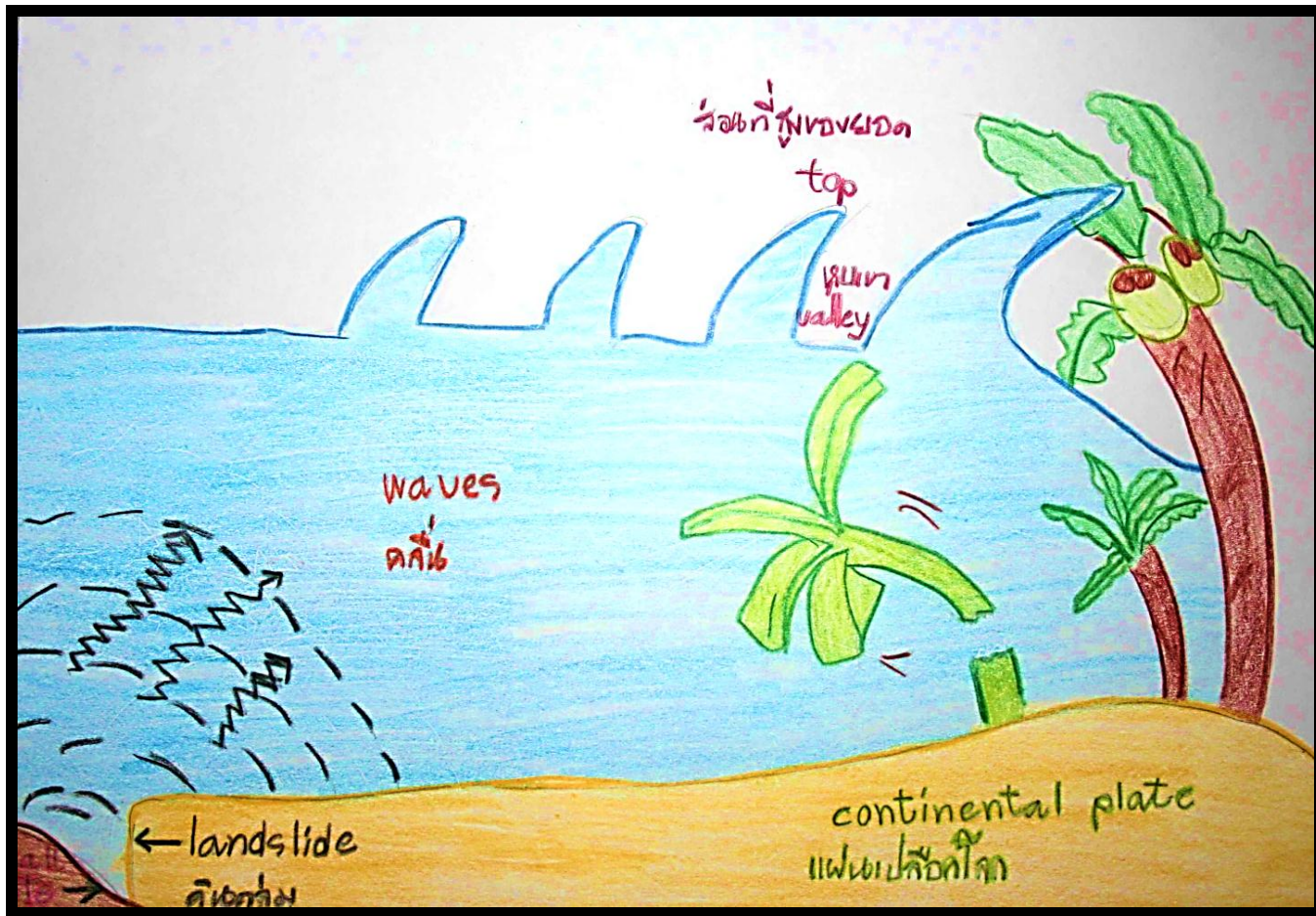
Tsunamis begin when huge amounts of ocean or sea water are displaced,



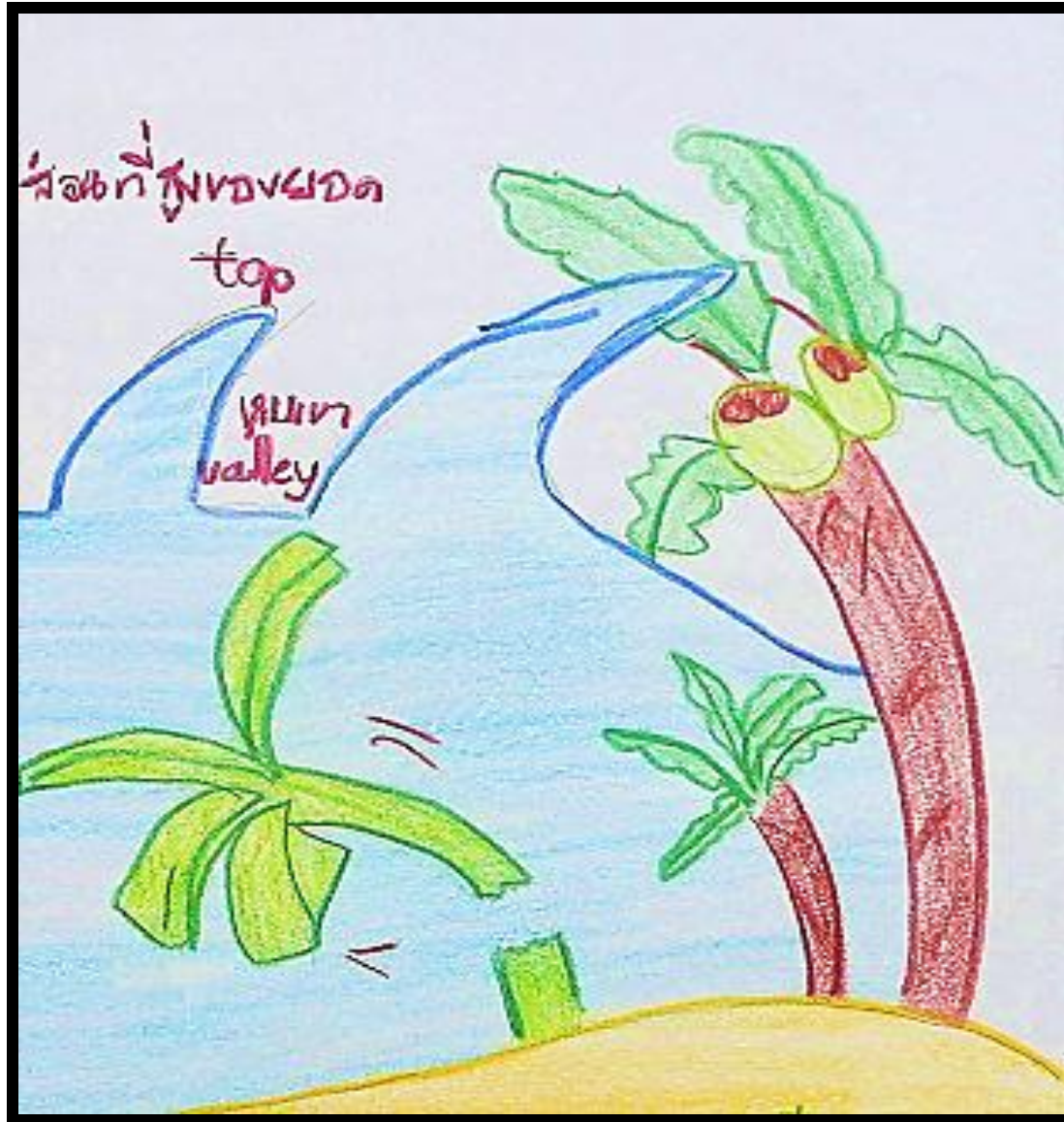
usually by  
earthquakes, volcanic eruptions, or landslides.



Most tsunamis are not a single wave, but a series of waves called a “wave train.”



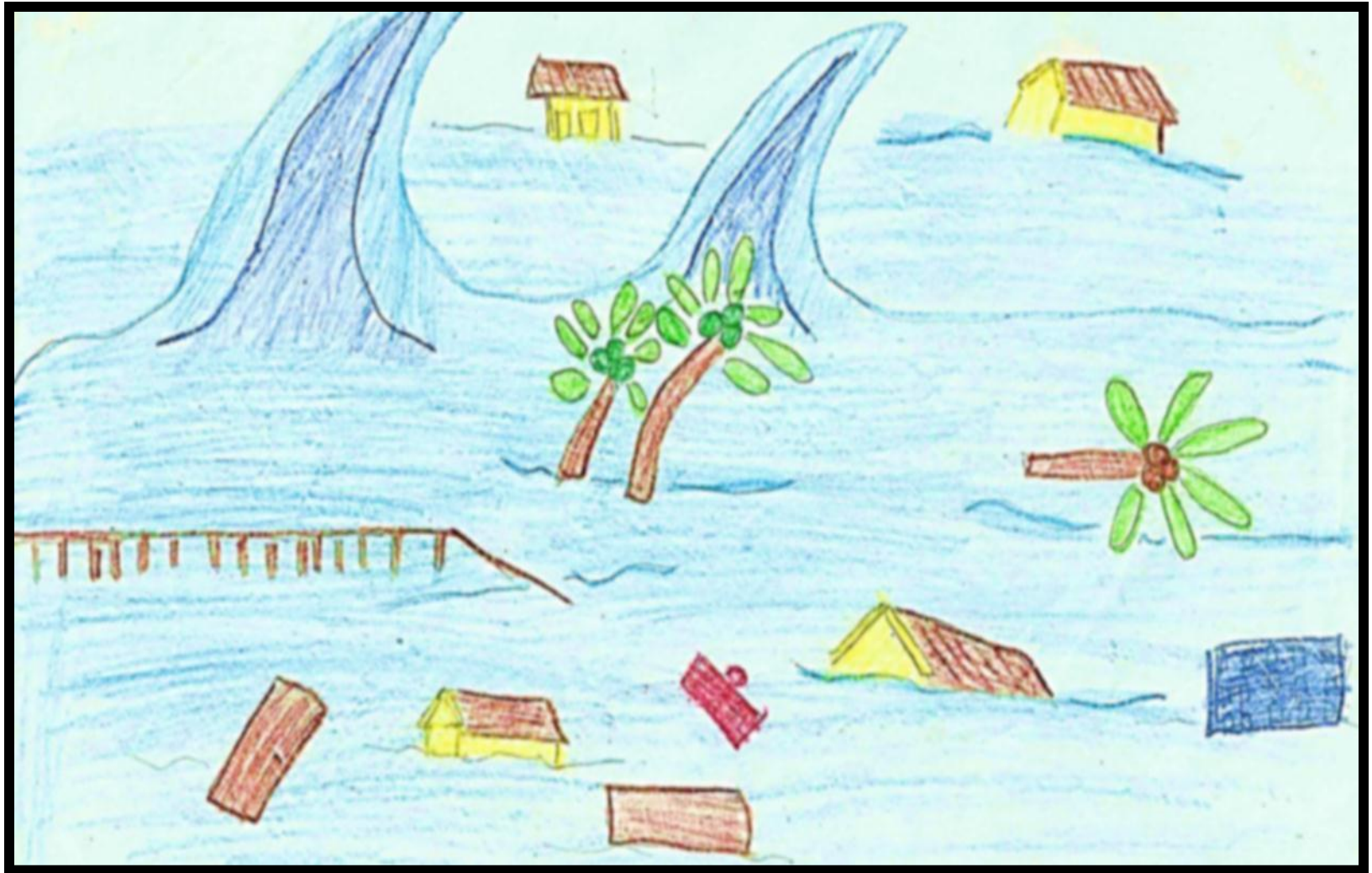




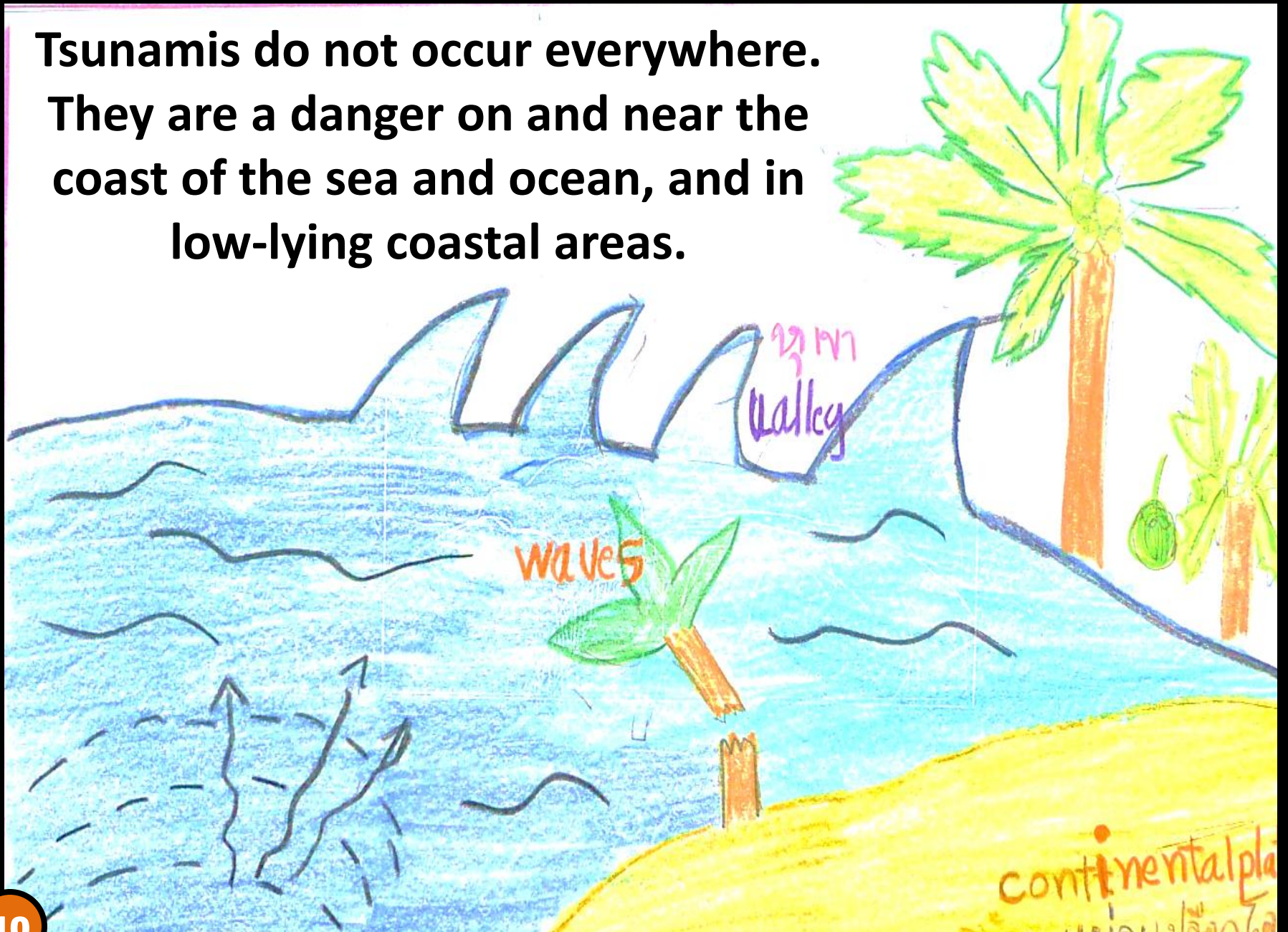
**Tsunamis  
bring so  
much water  
to shore that  
they can  
flood many  
miles of land  
that is  
usually dry.**



**They can travel many miles inland, carrying cars, boats, trees, and even buildings with them.**



**Tsunamis do not occur everywhere. They are a danger on and near the coast of the sea and ocean, and in low-lying coastal areas.**





**80% of tsunamis are in the Pacific Ocean,**



**but they can occur in any ocean or body of water.**





**Tsunamis do not happen very often,**





but when they do, they cause great damage ...

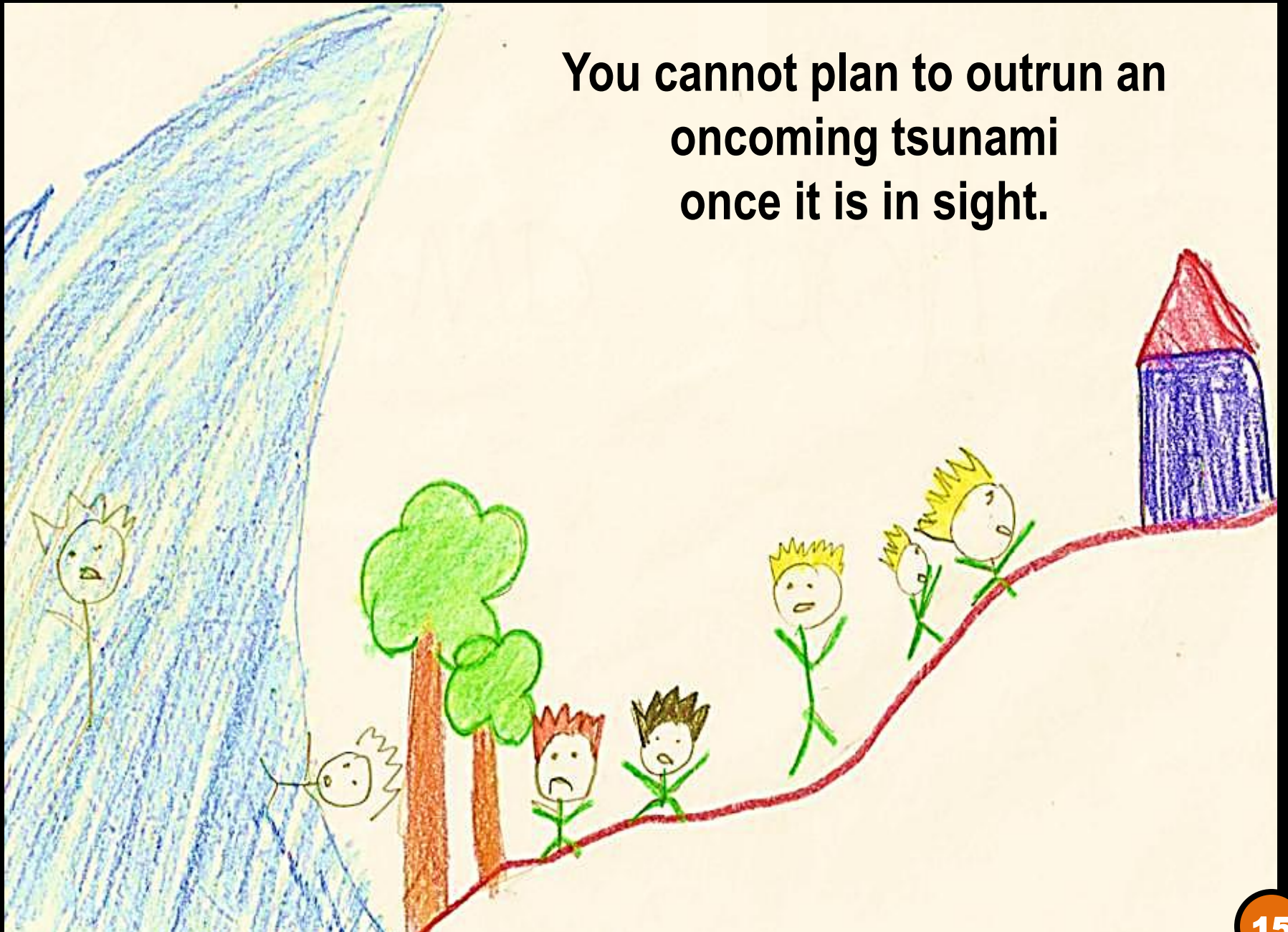


... and suffering.





**You cannot plan to outrun an  
oncoming tsunami  
once it is in sight.**



You cannot plan to surf over, duck under . . .





**or  
swim  
through a  
tsunami.**





**Many  
people  
don't  
know  
what to  
do if a  
tsunami  
is  
coming.**



**Around the world, people should learn about tsunamis and safety.**

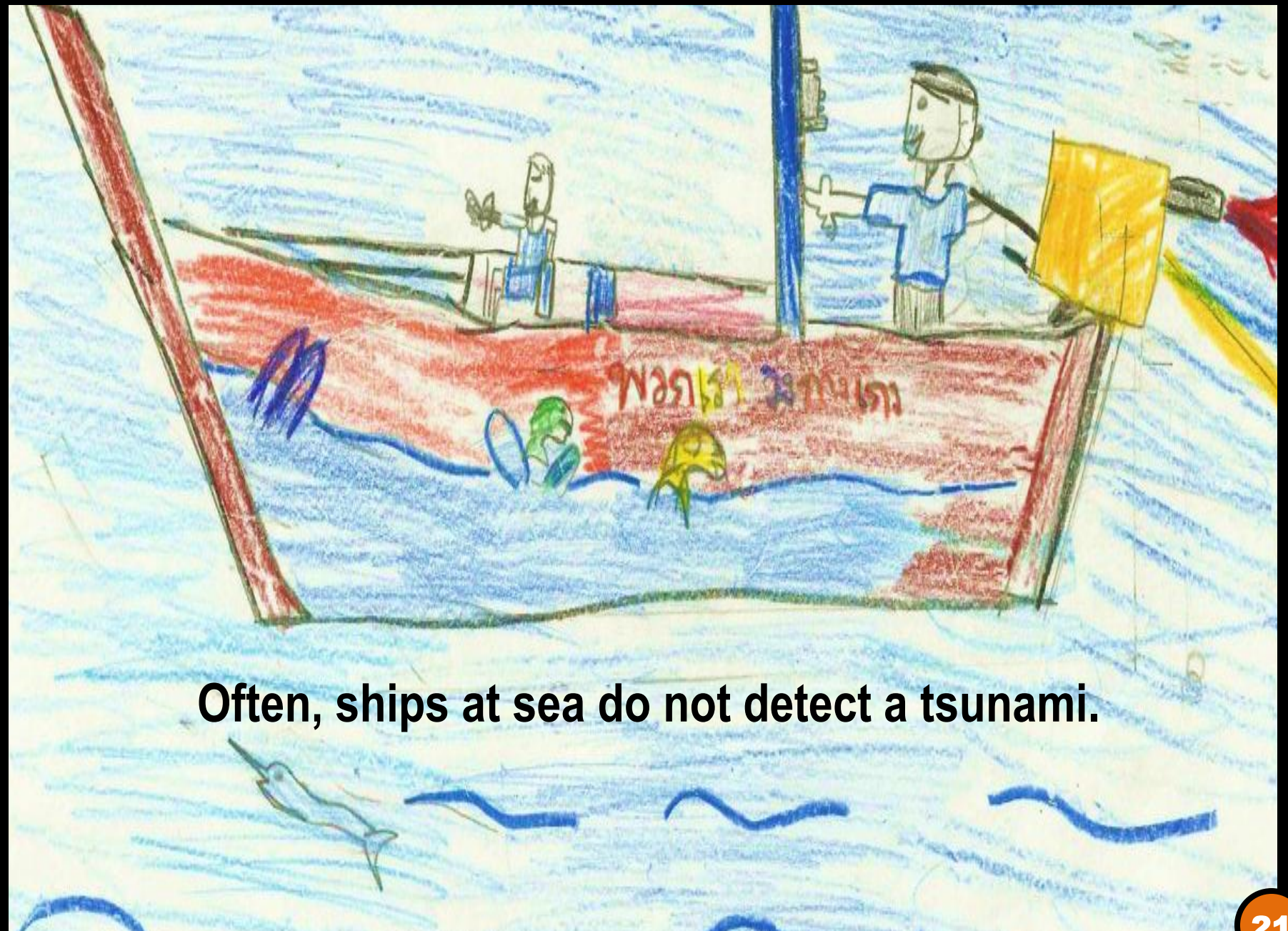




# TSUNAMIS AT SEA

- Tsunamis travel underwater at very fast speeds: 500 to 600 miles per hour.
- Far at sea, a tsunami can be only a few inches to one foot high, and the crests of each wave may be up to 100 miles apart.

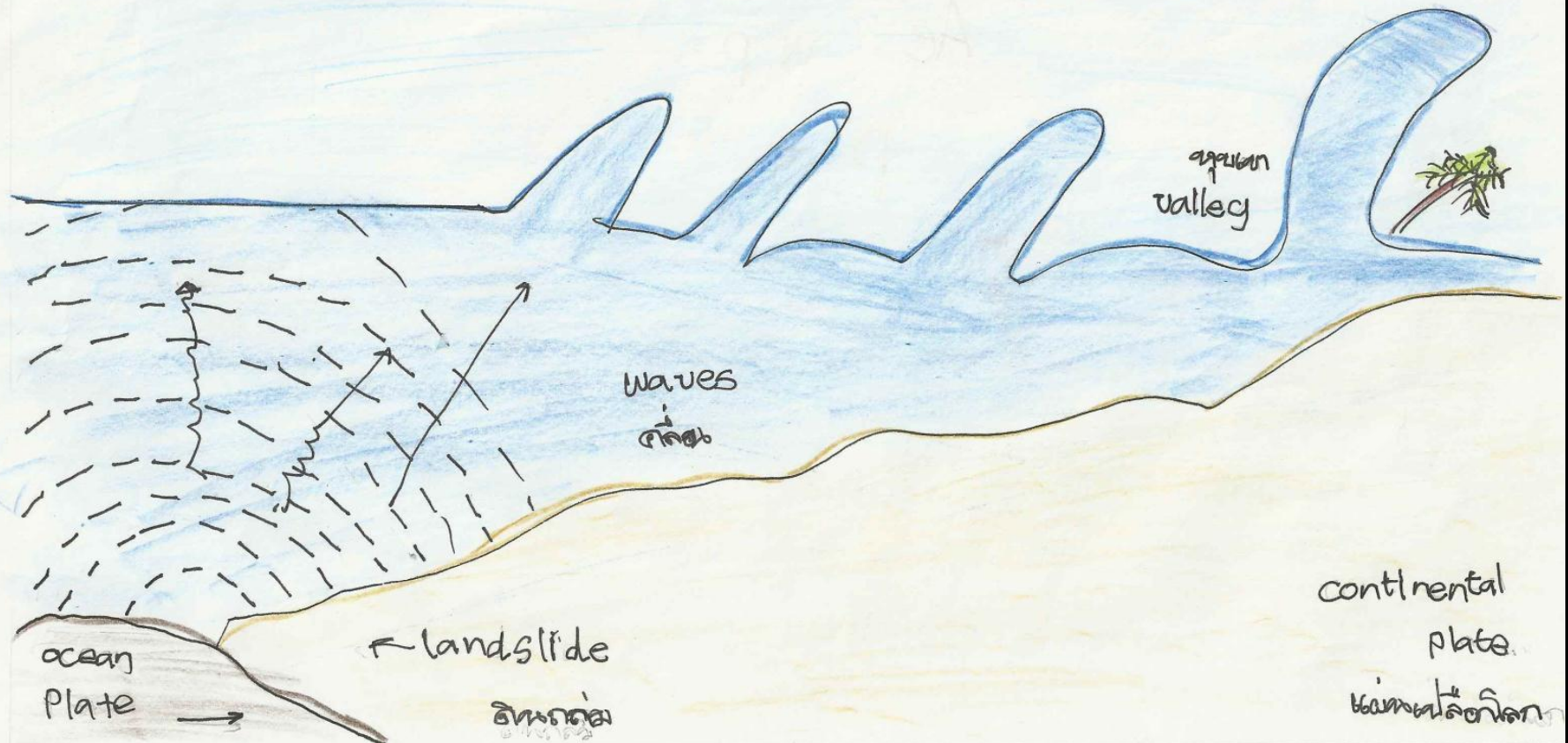




**Often, ships at sea do not detect a tsunami.**



# WHEN TSUNAMIS REACH LAND



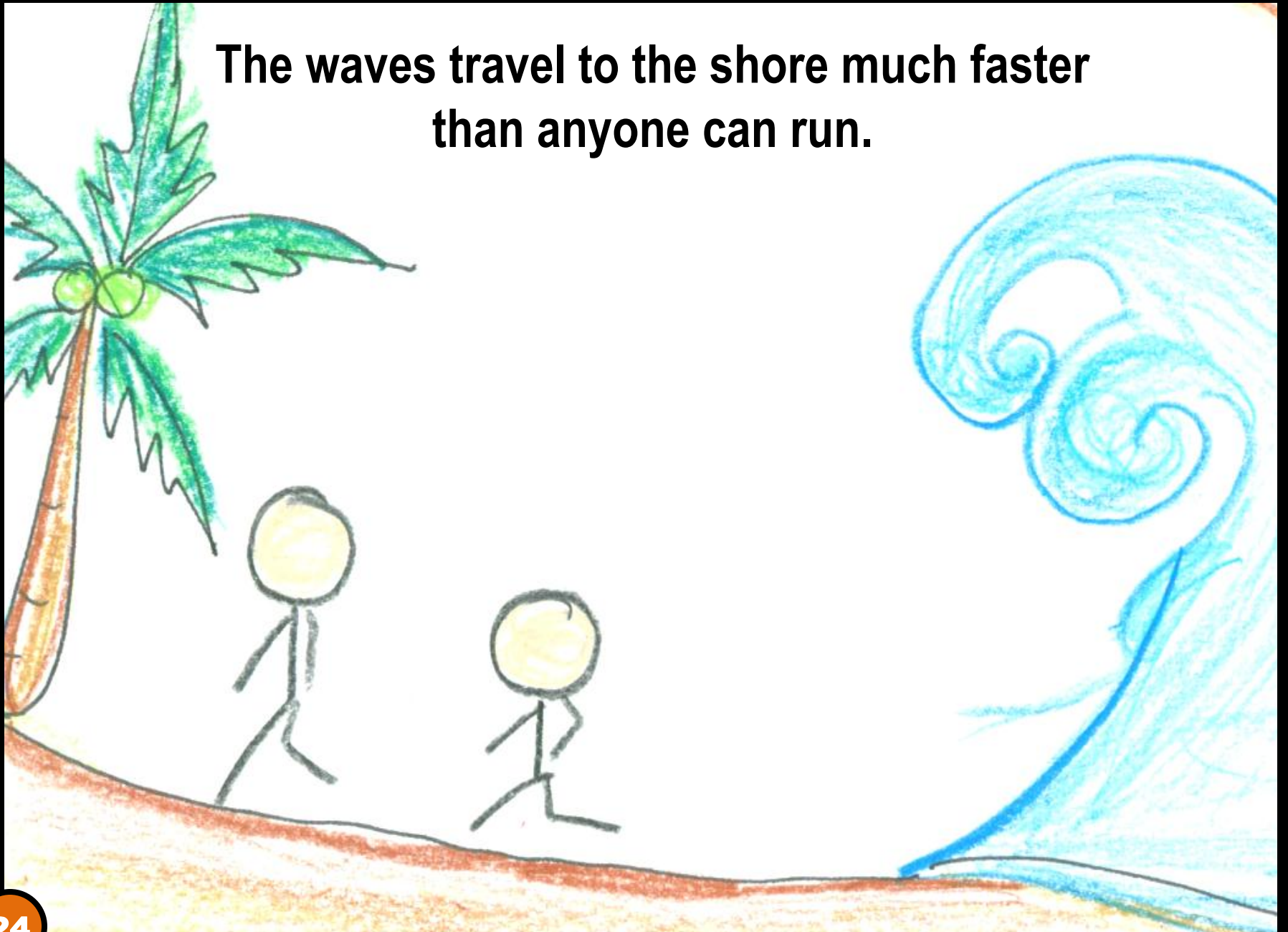
**Tsunamis become very destructive as they approach land. The waves slow down and build in height.**



**A tsunami wave train that is approaching the shore is louder than a train or airplane.**



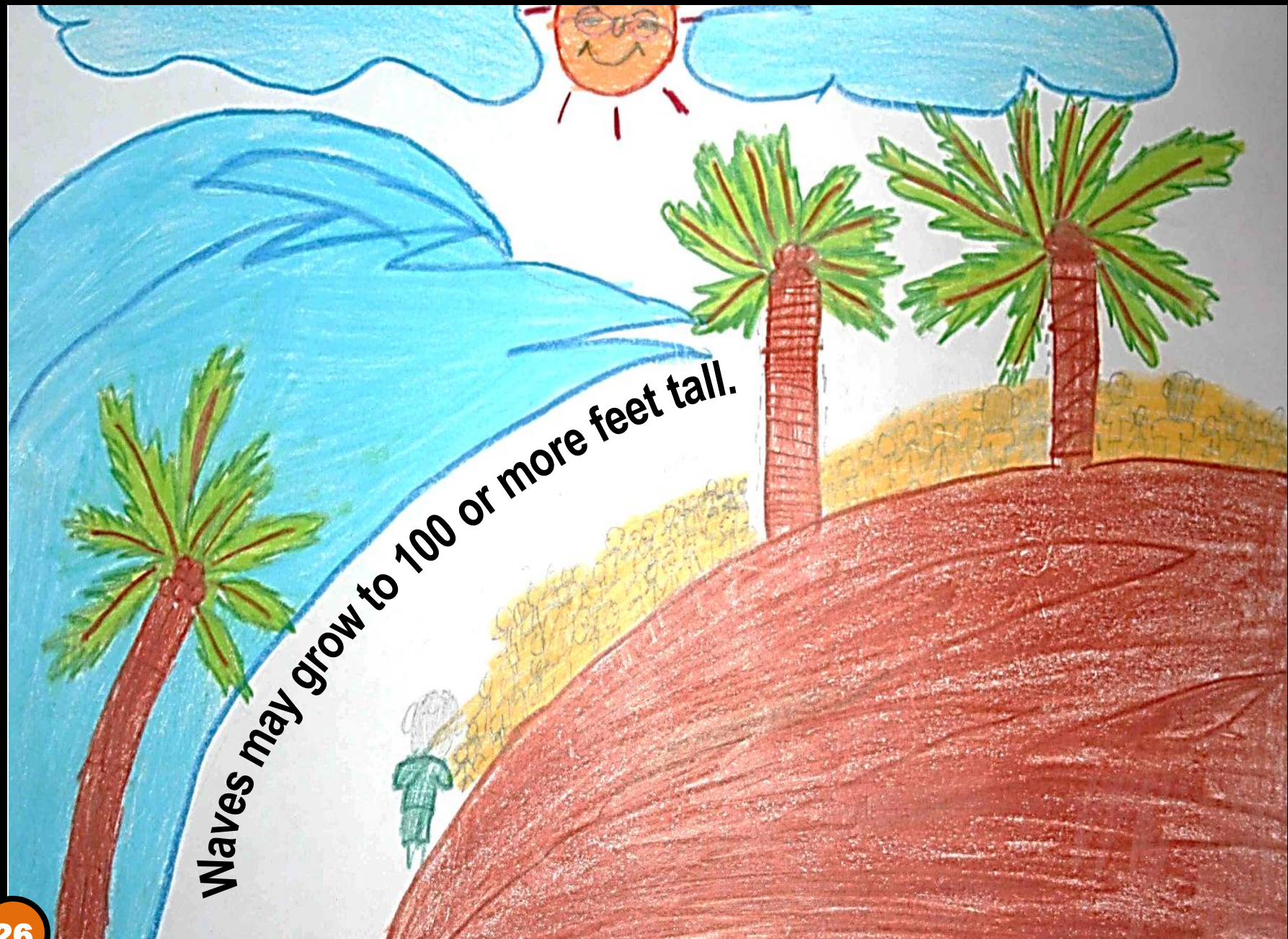
**The waves travel to the shore much faster than anyone can run.**





Sometimes, the 1<sup>st</sup> wave of a wave train is **smaller**, and the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> waves are **MUCH BIGGER**. Each wave in a wave train may be minutes to an hour apart in reaching the shore.





Waves may grow to 100 or more feet tall.

# HOW TSUNAMIS REACH LAND

Tsunamis usually reach land in one of two ways:

1. Sometimes the **TROUGH** or “valley” of the wave arrives first, or
2. Sometimes the **PEAK** or “top” of the wave arrives first.



If the **TROUGH** of the wave arrives first . . .

there is what appears to be a large receding tide. The water draws back to the sea farther than it usually does on low tides, and a large area of new beach is exposed.

The receding water is called **DRAWBACK**.  
It will be followed by a tsunami.

Sometimes,  
even before the **DRAWBACK**,  
energy from an oncoming tsunami  
can be seen in frothy, swirling water  
at the edge of sea.

It almost looks like the water  
is sizzling or boiling.



If the **PEAK** of the wave arrives first. . .

the water rises,  
with powerful swirling and turbulence.

Then the water recedes,  
and the powerful tsunami wave train arrives.

# HOW TO STAY SAFE IF A TSUNAMI IS COMING

There are many things you can do to be safe.



First, you can learn how to recognize the **WARNING SIGNS** that a tsunami is coming.



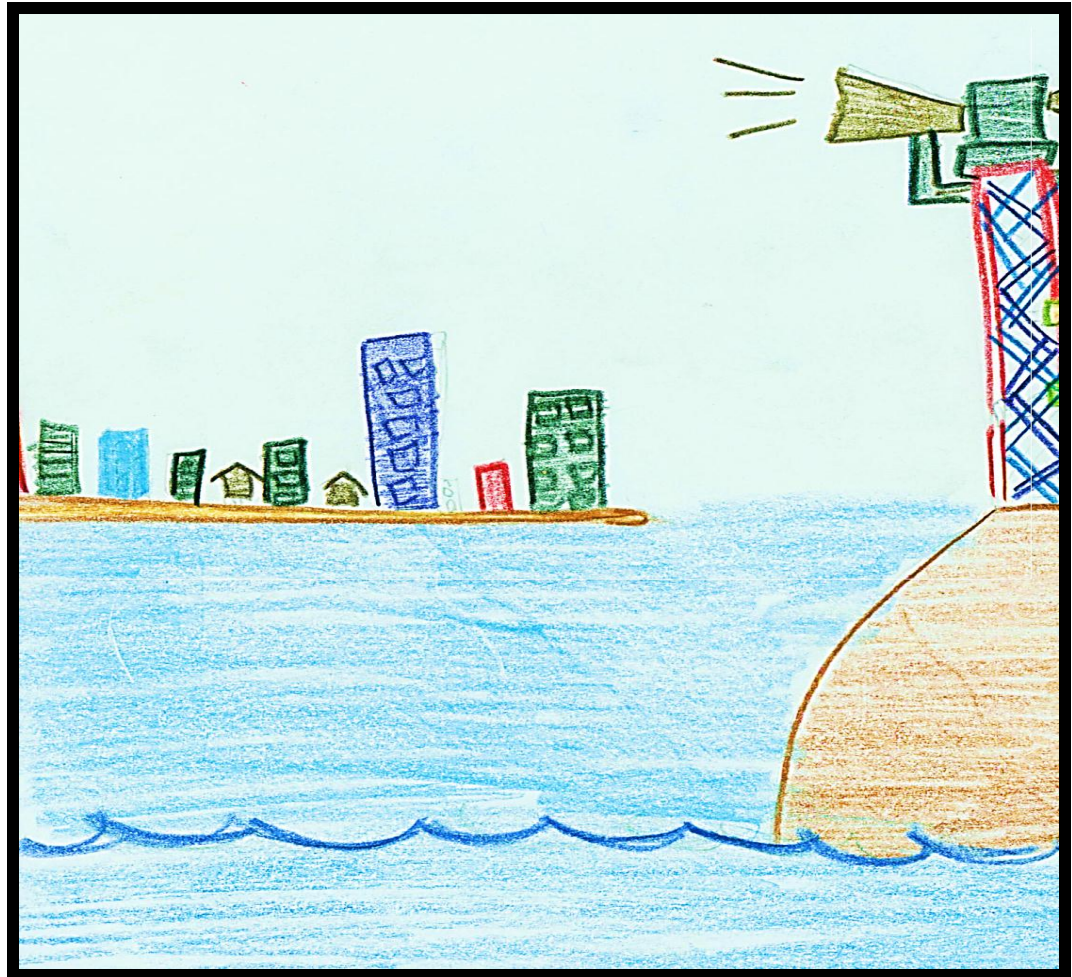
# TSUNAMI WARNING SIGNS

**If you feel an earthquake when you are near the coast, expect a tsunami. Evacuate to a high, safe place.**



# TSUNAMI WARNING SIGNS

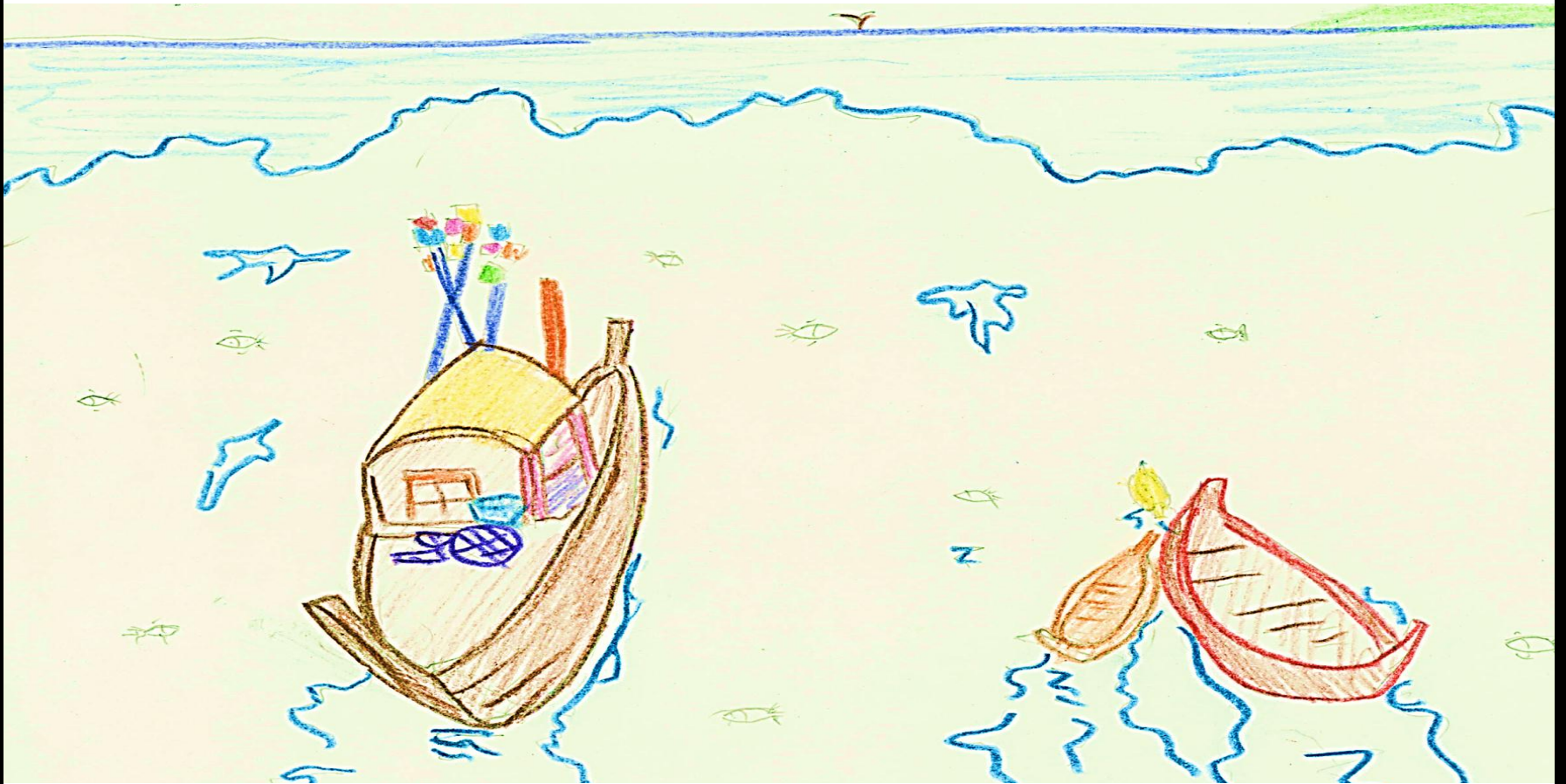
**If you hear the sound of tsunami warning sirens or horns, evacuate to a high, safe place.**





# TSUNAMI WARNING SIGNS

If you see the water recede farther than it goes at low tide,



... evacuate to a high, safe place immediately.

# TSUNAMI WARNING SIGNS

**If you see that the water at the edge of the sea has started to rise, froth, bubble, or become turbulent, evacuate to a high, safe place immediately.**





# HOW TO STAY SAFE IF A TSUNAMI IS COMING

Here is something else you can do:



You can learn about evacuation to high, safe places.

This is called **VERTICAL EVACUATION.**

# VERTICAL EVACUATION

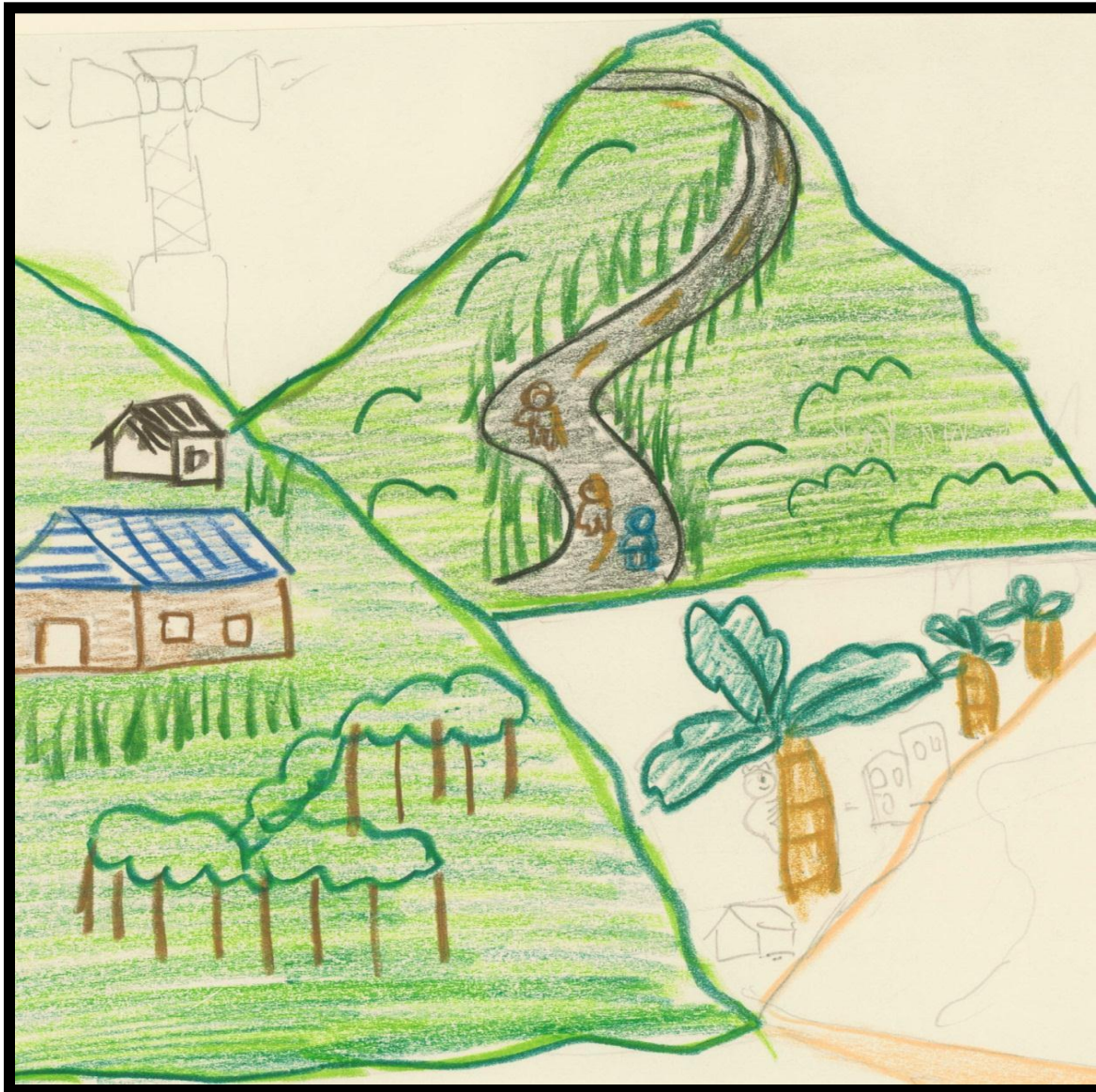
The key to surviving a tsunami is getting to a high, safe place.





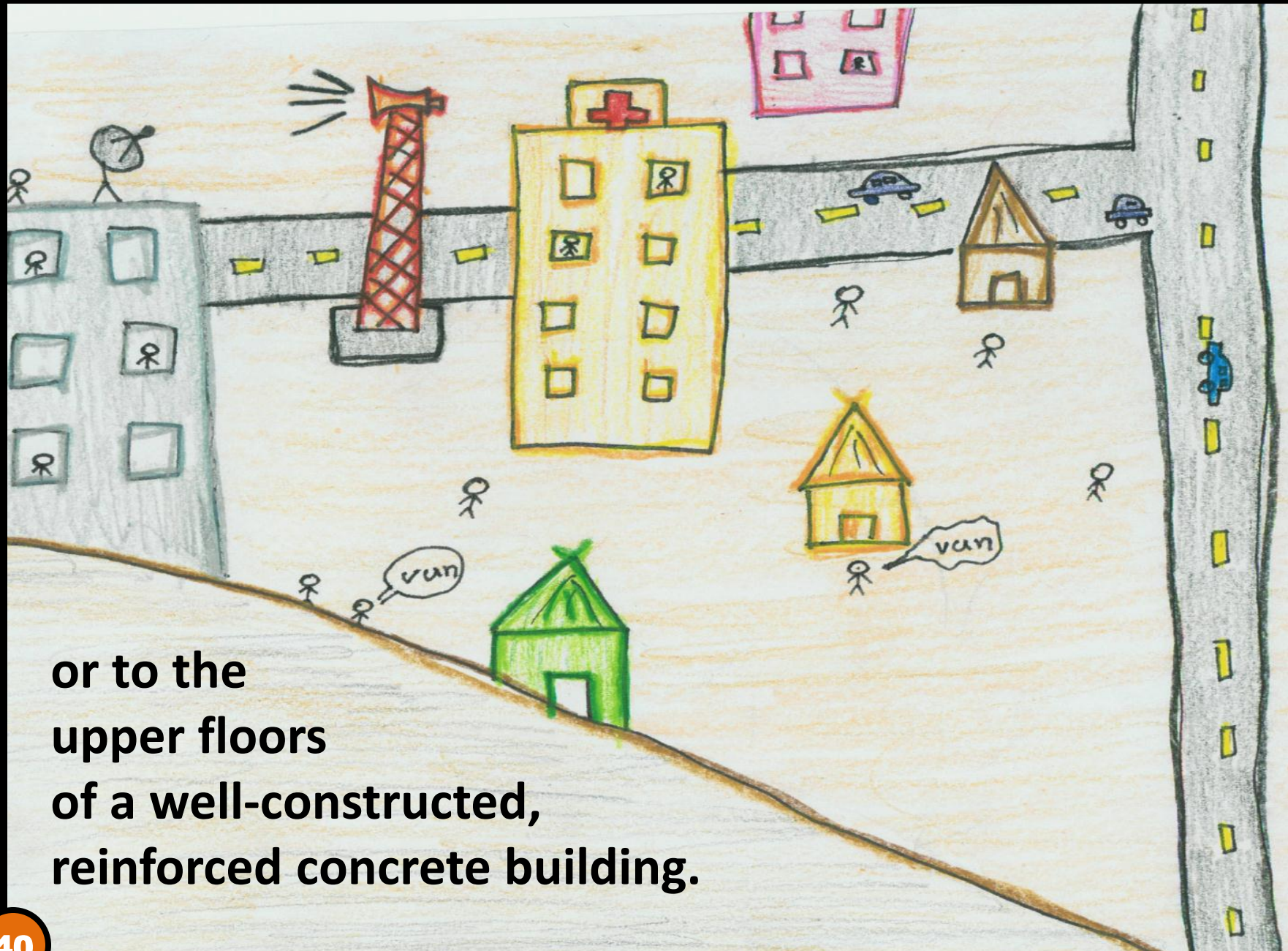


**The roof of a cabin or house, or a big tree is not high enough or strong enough for protection during a tsunami.**



**To be safe,  
go to high  
land  
far above  
the level of  
the beach,**





or to the upper floors of a well-constructed, reinforced concrete building.

**This is called**

# **VERTICAL EVACUATION**

**because you are high and safe  
from the waves and floodwaters.**



# HOW TO STAY SAFE IF A TSUNAMI IS COMING

Here is something else you can do:



You can learn the safest things to do if a tsunami is coming.

# TSUNAMI DOS AND DON'TS



**There is very little time to get to safety if a tsunami is coming. Evacuate vertically.**



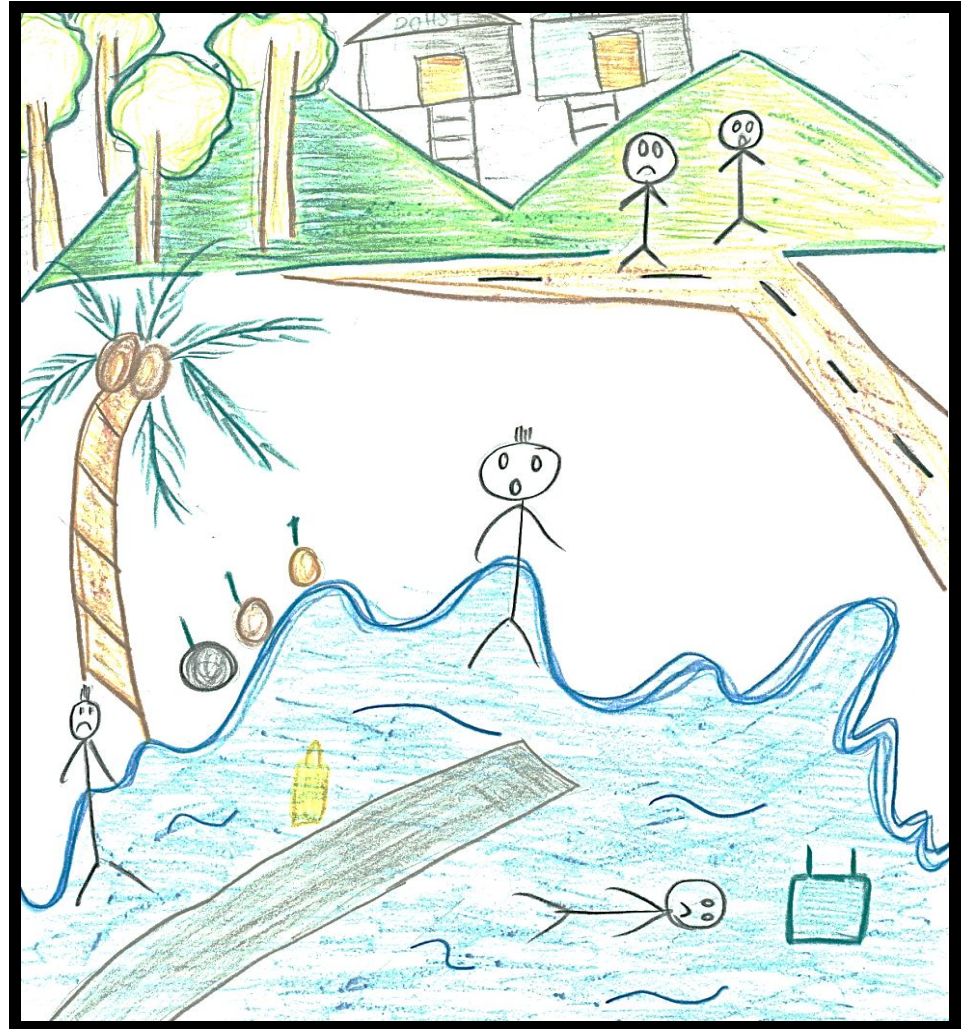
# TSUNAMI DOS AND DON'TS

**If you are near the coast and feel an earthquake, don't wait for any other sign. Tell your family and friends and get to a high, safe location immediately.**



# TSUNAMI DOS AND DON'TS

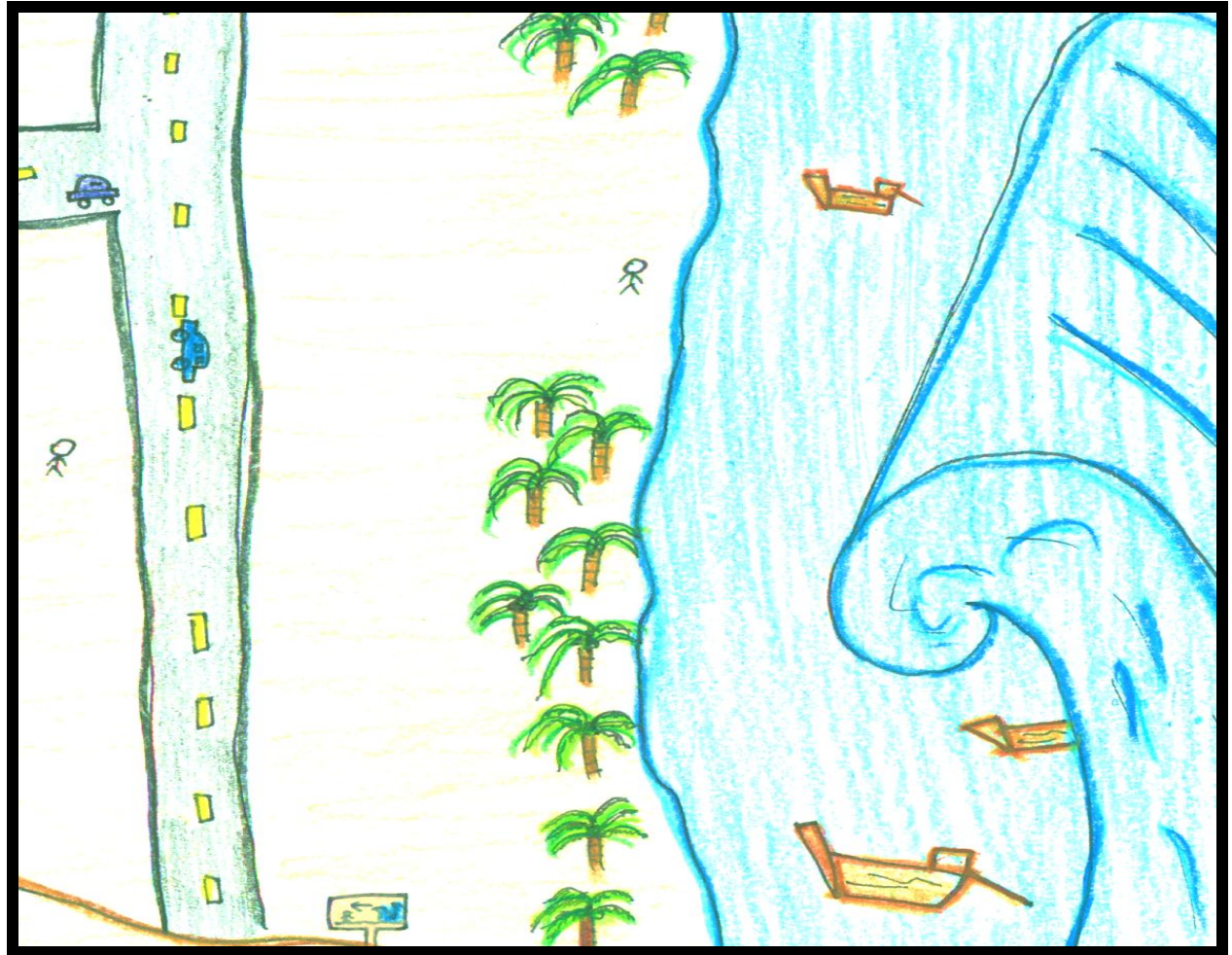
**Move  
as quickly  
as you can  
and  
warn others  
along the way,  
but  
do not stop  
or slow down.**



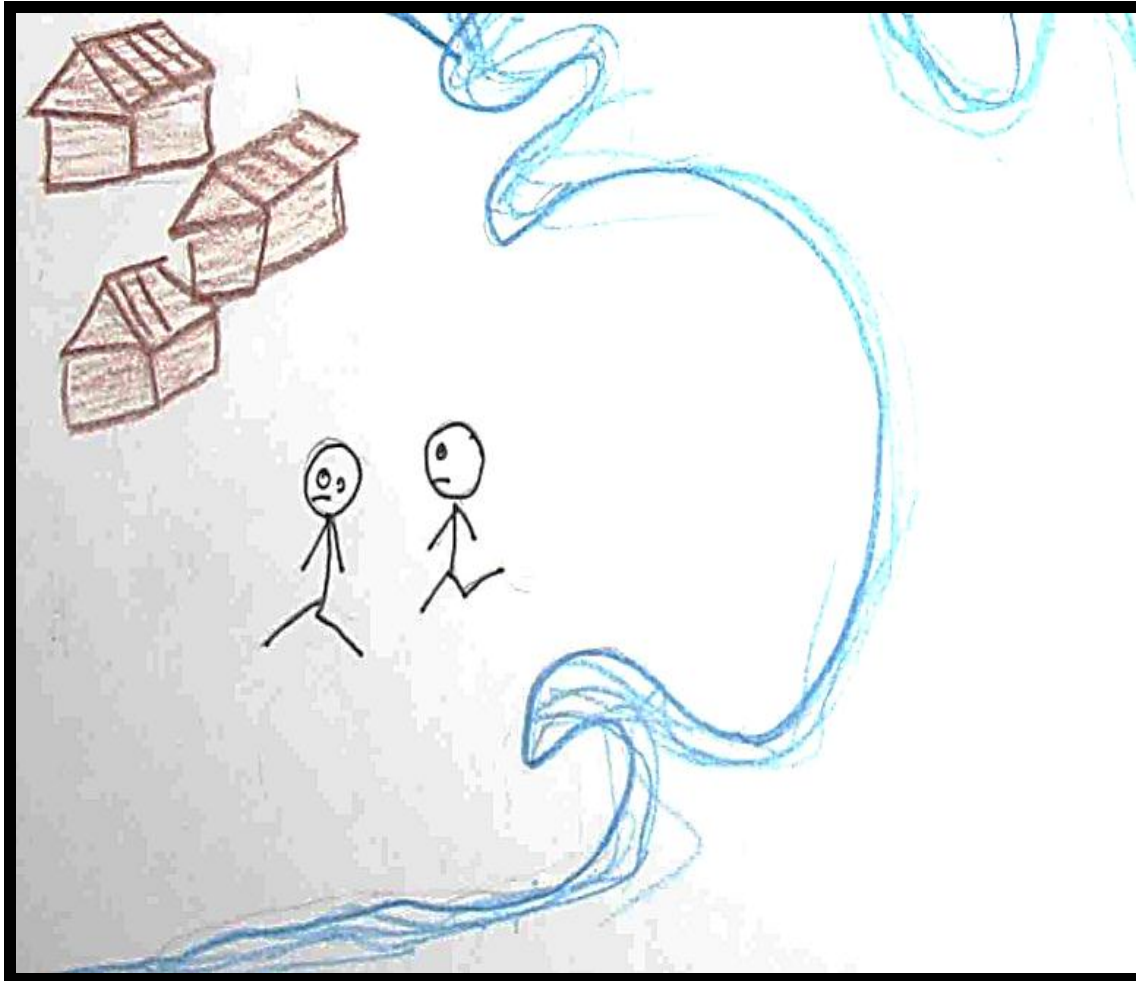


# TSUNAMI DOS AND DON'TS

**Never  
walk out  
into the  
DRAWBACK  
ZONE,  
even if  
there is  
no wave  
in sight.**



# TSUNAMI DOS AND DON'TS



**Even if the tsunami looks small, evacuate as quickly as you can.**

**Tsunami waves get much bigger very quickly as they approach the shore.**



# TSUNAMI DOS AND DON'TS

**Don't stop to pick up your toys or books, or to look for pets.**

**Evacuate immediately. Don't return for any reason.**



# TSUNAMI DOS AND DON'TS

**Don't leave your safe location until you have an “all clear” sign. It may take six or more hours for all of the waves to arrive.**





# HOW TO STAY SAFE IF A TSUNAMI IS COMING

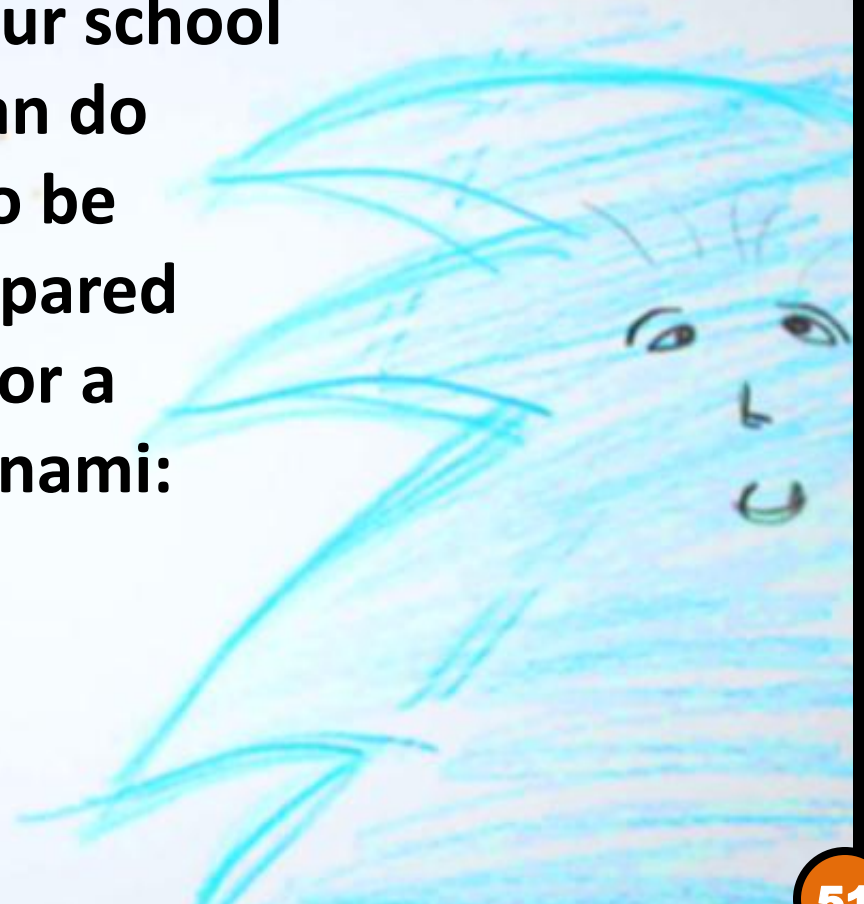
Here is something else you can do:



You, your friends, your family, and your school  
can be **PREPARED**.

# PREPARATION: THE BEST PROTECTION

Here are things that you, your family,  
and your school  
can do  
to be  
prepared  
for a  
tsunami:





# Learn which buildings are strong and high enough to provide safety.



Know where the highest land is, and how to get there.





**Learn  
where  
flood  
zones  
and  
evacuation  
routes  
are..**





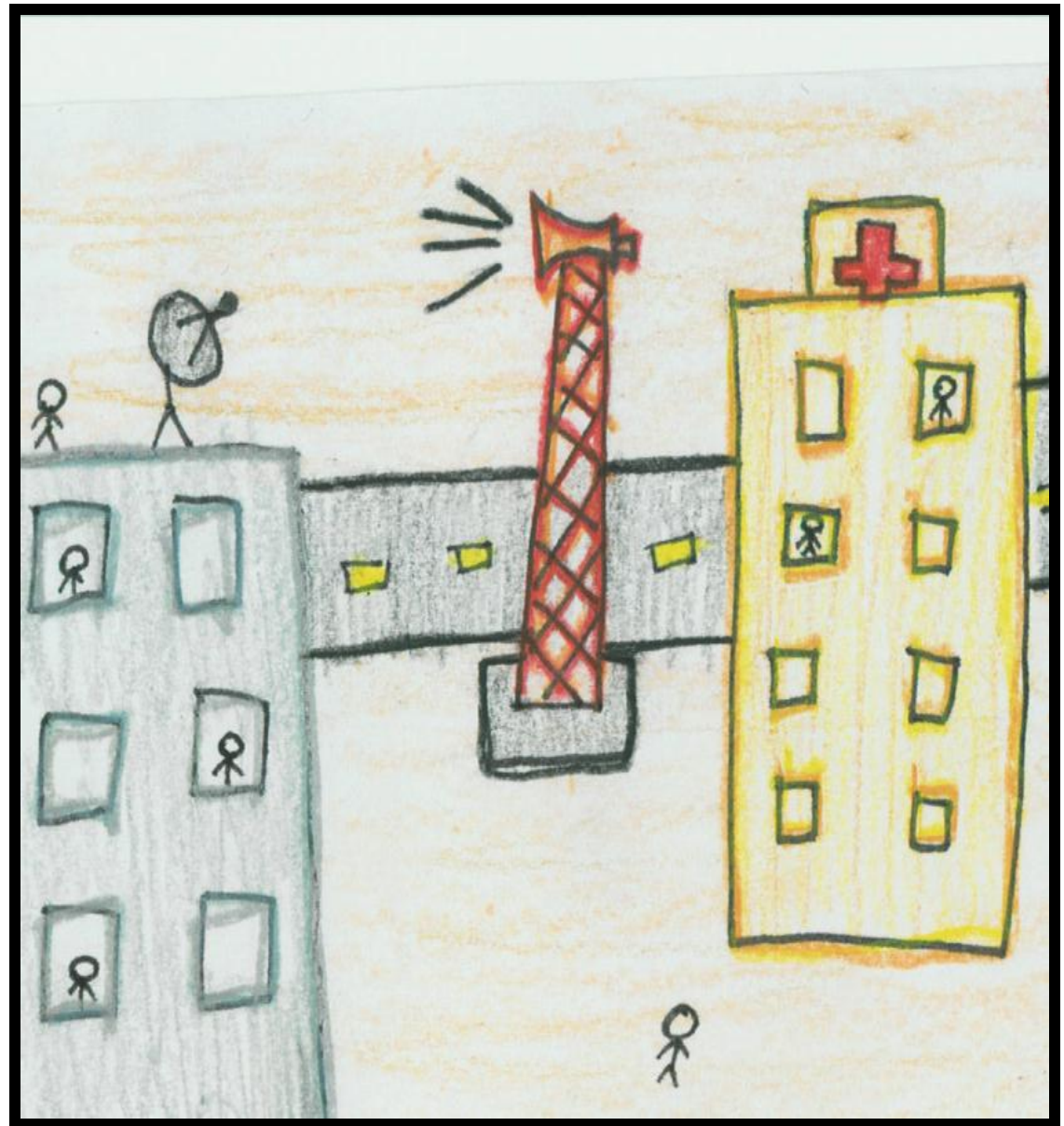
**Pay attention to signs that warn about tsunami dangers . . .**

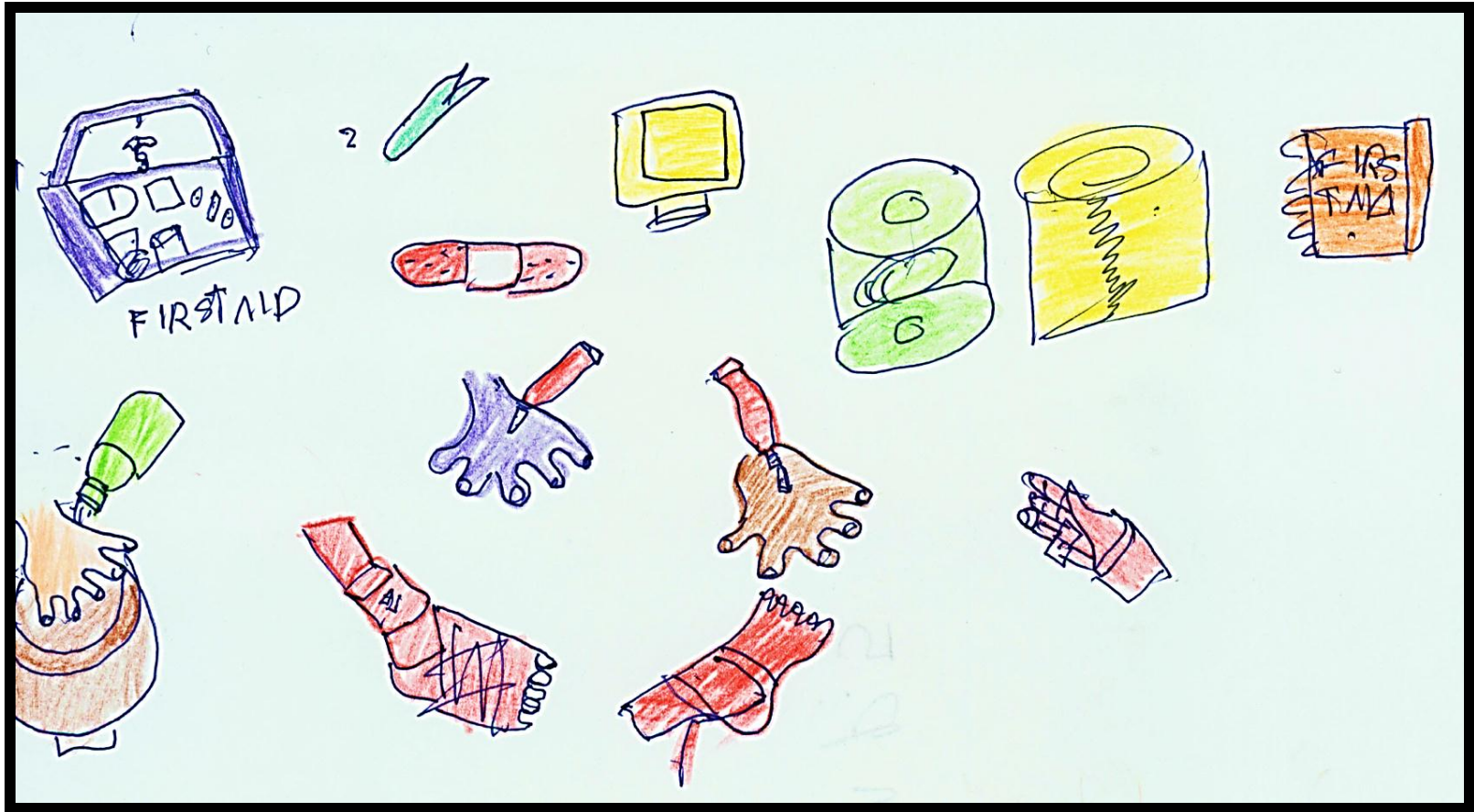


**. . . and teach about tsunami evacuation routes.**

**Learn about  
tsunami  
warning  
systems,  
if there is one  
in your area.**

**Recognize  
"warning"  
and  
"all clear"  
sounds.**





**Prepare an emergency kit that includes enough food, water, medication, first aid, and other essential supplies (wind-up radio, flashlight) to last at least 3 days.**





**Decide on a location where you will meet your family after a disaster.**



**Learn about  
disaster  
preparedness  
in school,  
and teach  
your family  
and friends  
what you  
have learned.**



**We  
wrote  
this book  
because  
we  
wanted  
to share  
what we  
know  
with you.**





**This book is dedicated to those whose unconditional love,  
during natural disasters and in the months and years  
later, moves mountains  
and brings life back.**



**May this book empower and protect those who read it,  
through the shared knowledge and experience of others.**

*Petra Nemcova*

# **This project was made possible through the creative gifts and dedication of many people:**

- ♥ **Students from Chao Thai Mai and Wat Pattikaram Schools who contributed their lovely artwork and thoughtful words.**
- ♥ **Teachers and professional staff from Chao Thai Mai and Wat Pattikaram Schools and from Happy Hearts Fund who organized and supported the project from start to finish.**
- ♥ **Volunteer translators who have brought the richness of this work to children around the world.**

## **Happy Hearts Fund gives special thanks to:**

- |                                  |                                  |
|----------------------------------|----------------------------------|
| ♥ <b>Supon Chengchop</b>         | ♥ <b>Cindy Bratton</b>           |
| ♥ <b>Yindee Pattaranukom</b>     | ♥ <b>Wasan Sriwattananuphong</b> |
| ♥ <b>Charoon Seabphong</b>       | ♥ <b>Laura Giannini</b>          |
| ♥ <b>Kanyanee Sangsema</b>       | ♥ <b>Doug Kennedy</b>            |
| ♥ <b>Waron Sriwattananuphong</b> | ♥ <b>Carolyn Olivier</b>         |

**Contact us at [info@happyheartsfund.org](mailto:info@happyheartsfund.org)**