

# Caitlin's Amazing Day

A story about farming and

# DNA!



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See our websites for additional resources:  
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# Caitlin's Amazing Day

A story about farming and DNA

Today is an exciting day, class!  
We are going to learn about the  
double-helix shape of DNA.  
This is so cool because...



One day in science class, after  
staying up WAY too late playing  
video games...



Caitlin is getting sleepier



and sleeper,

and when she wakes up....



"THIS JUST IN FOLKS... WE HAVE WORD THAT ALL...YES, ALL FARMERS DECIDED TO GO ON VACATION!" WHERE HAVE THEY GONE? ARUBA? JAMAICA?

Hmmmm? What is going on here?



The Daily Times Honolulu SECTION 3

# HEADLINE NEWS

## NO FARMERS = NO FOOD!

What will we do? Where will our food come from? Does this mean there are no more snacks? How can we survive? Where did all the farmers go and when will they be back? How are we going to be able to solve this problem? We need help and we need it fast!



Will we Starve?

No food? We have plenty of food in the kitchen...



What?!?!  
No food in the fridge!  
Hmmm...that means no  
fruits and veggies



No cereal...No chips...No cheezie puffs!  
Ahhhh! The snack cabinet is  
empty, too!!

OR is it?



and Cookies...  
**No Cookies?!**  
How can I survive  
with NO COOKIES!



HEY! WHERE DID ALL THE  
FOOD GO ?!?!

Whoa...  
A Talking Cockroach!



Who are you?

MOCHI

Mochi! Where?  
Hey, do you see food?

NO! MY NAME  
IS MOCHI



Oh, well, Mochi, I think there  
is no food because the farmers  
left their farms.

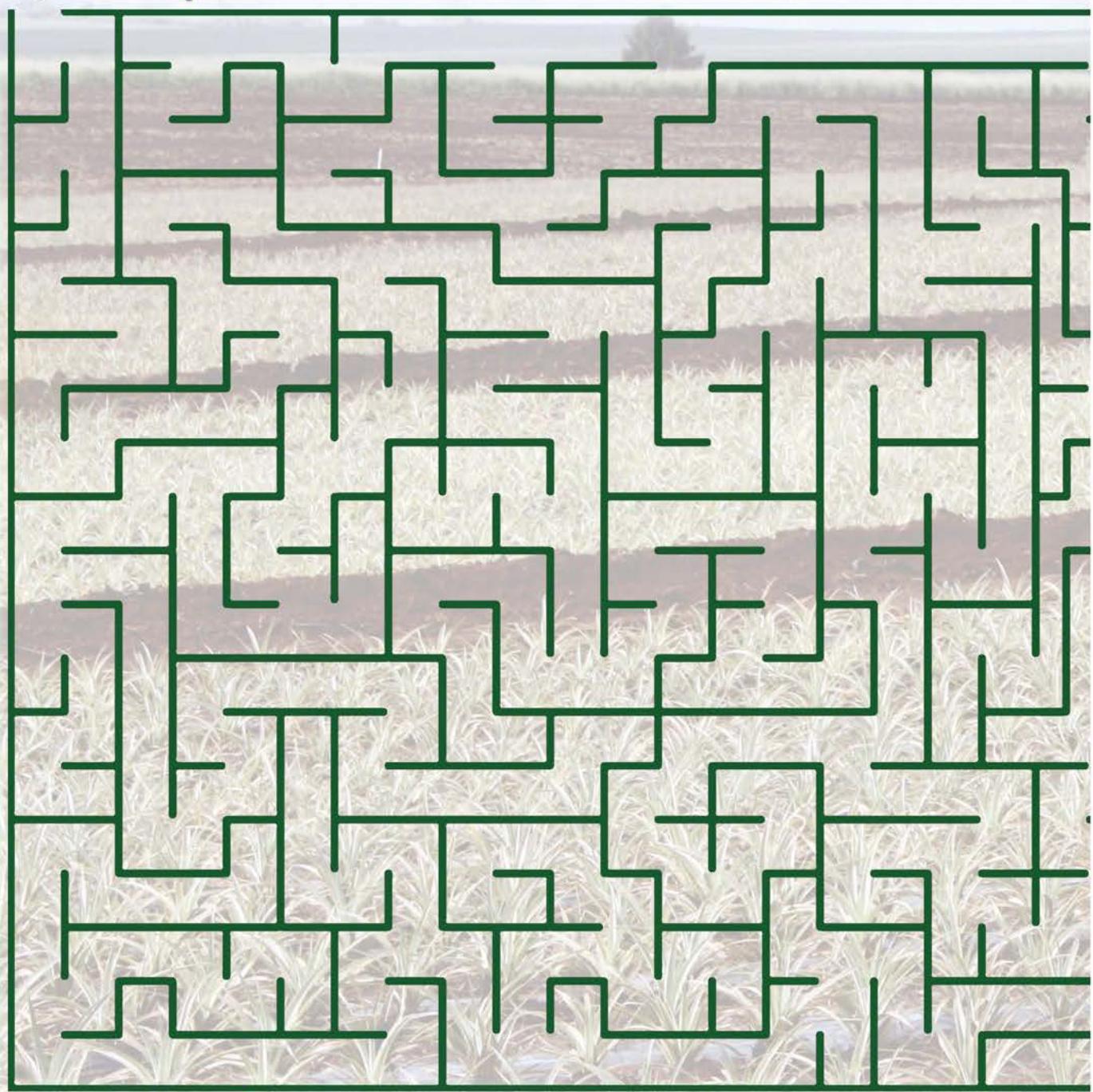
YEAH, WELL I ATE AT A FARM  
JUST LAST WEEK. LET'S GET OVER  
THERE AND SEE WHAT'S GOING ON!



Did you know ? There are over 7,000 farms



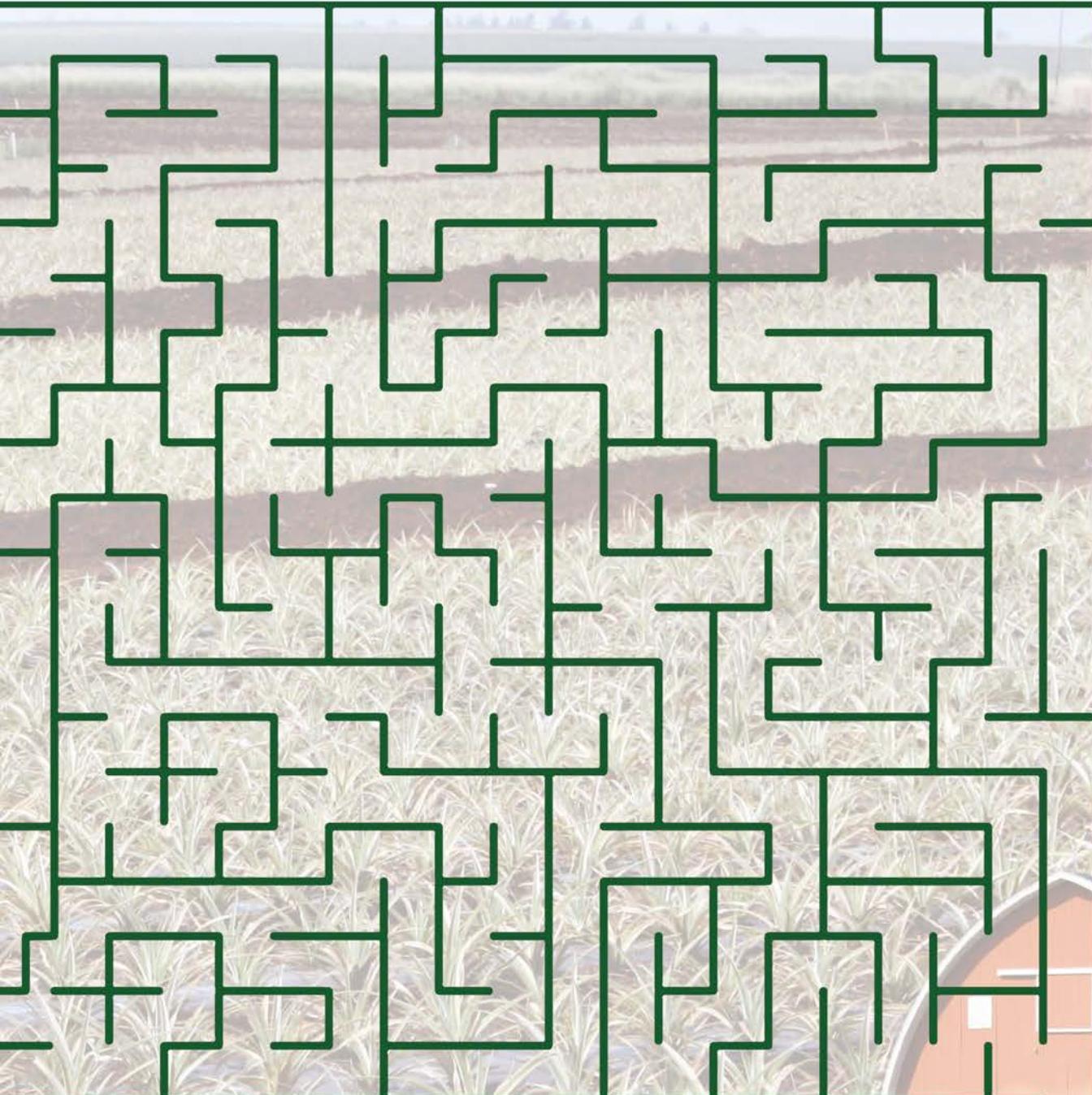
Start Here  
grows coffee and macadamia nuts \*



about 150 acres \* Hawaii is the only state that

# Help Caitlin & Mochi Find Their Way to the Farm!

in Hawaii \* Seed Crops, Pineapple & Sugarcane are



Hawaii's most valuable crops \* Farmland covers

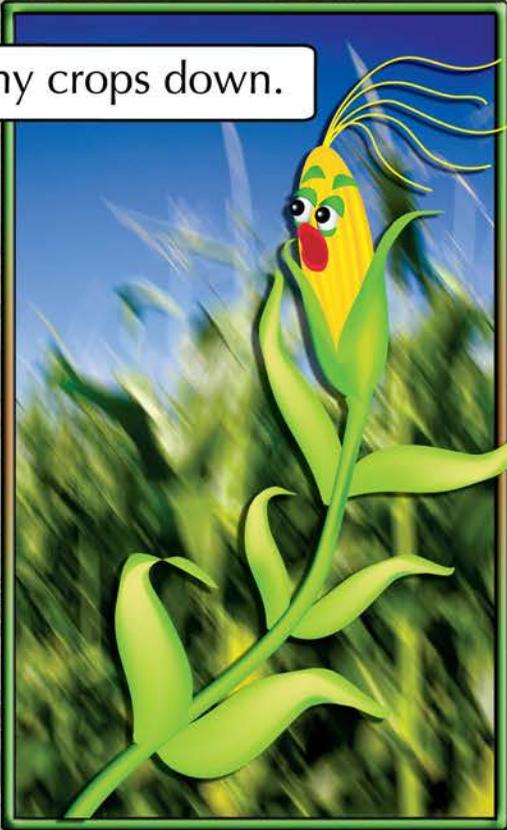
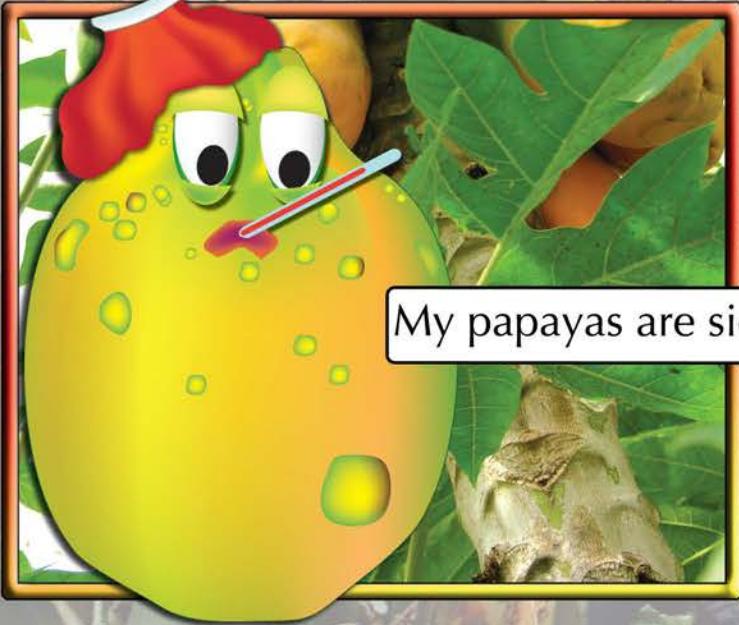
about 40% of Hawaii! \* The average farm is

At The Farm!





The wind is blowing my crops down.

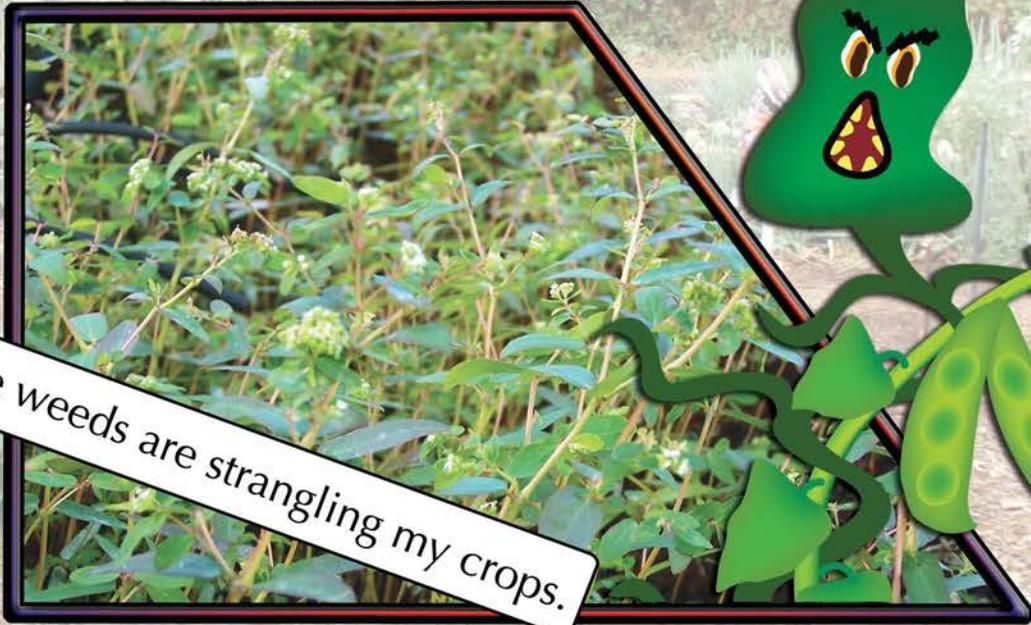




Insects are eating the corn.



The rain is flooding my fields.



The weeds are strangling my crops.

If only we had HELP  
to make farming easier!



Did I hear  
someone say  
they need help?!?!?



Who are you?



I'm the scientist who can  
help you with your problems.  
Hold on a minute...I have  
just the rap for you!

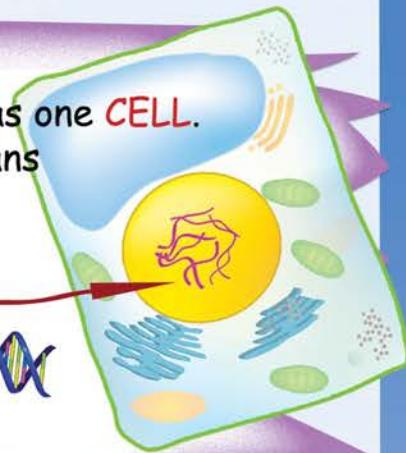
RAP?!?

**KAZAM!**

Well, I'm the Rappin' Researcher  
and I'm here to say....  
That answers to your problems  
are found in DNA!

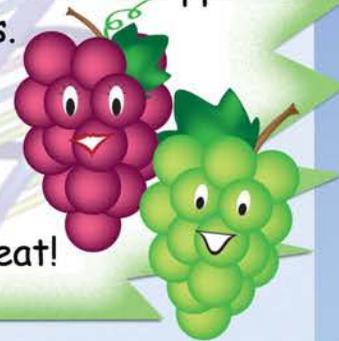
Every living thing begins as one **CELL**.  
That means not only humans  
but **PLANTS** as well.

If you look inside the cell  
at the **NUCLEUS**  
you'll find the **DNA**  
that's important to us.



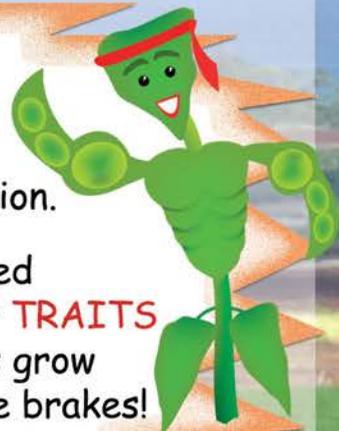
**DNA** is what makes  
all the different **TRAITS**.  
It's why we have sweet or sour apples  
or red or green grapes.

Traits are cool  
and traits are neat  
So listen up  
and feel the funky beat!



All the farmers  
took a vacation  
cause' it can get hard  
to feed the whole nation.

What our farmers need  
are crops with better **TRAITS**  
that will let the crops grow  
without putting on the brakes!



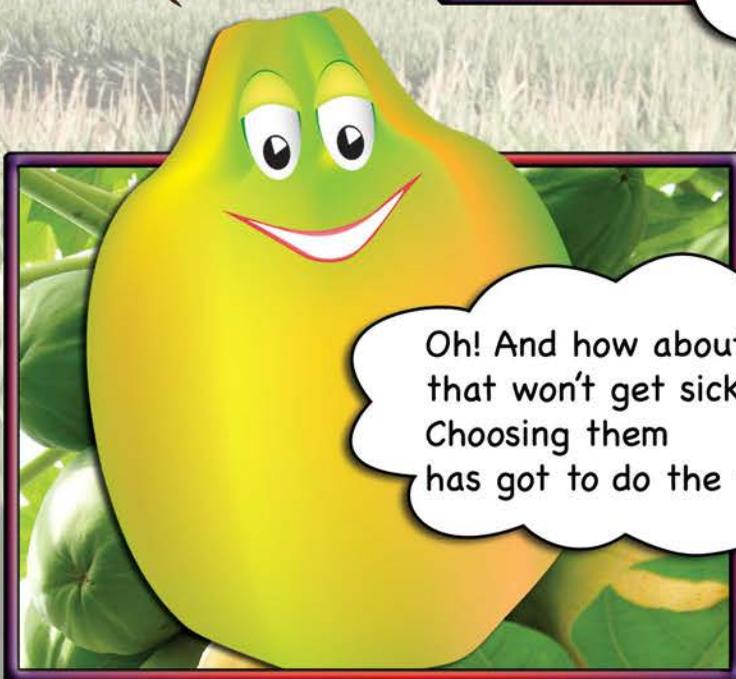
OH! I GET IT!  
DNA IS WHAT GIVES  
PLANTS DIFFERENT TRAITS.  
FARMERS NEED PLANTS  
WITH THE BEST TRAITS.



MOVE ON OVER  
AND LET ME GRAB THE MIC.  
WHAT WE'RE GONNA NEED  
IS THE CORN BUGS DON'T LIKE!



Another trait  
that a crop needs  
is to keep growing strong  
while the farmers fight the weeds.



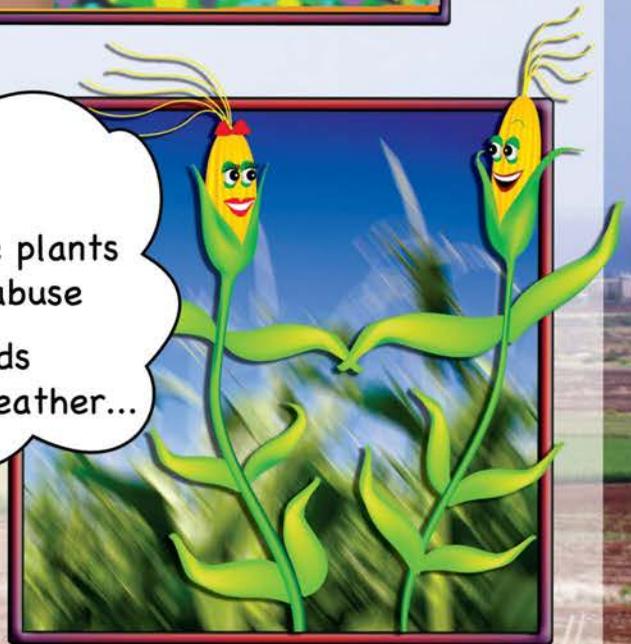
Oh! And how about papaya  
that won't get sick.  
Choosing them  
has got to do the trick!



Wow! You're awesome!  
You're right on track.  
But there's a few more traits we need  
before we all come back...



I know what  
you could use!  
What about some plants  
that won't take abuse  
from wind or floods  
or dry drought weather...



Now let's get these farmers and scientists  
to all work together!



"THIS JUST IN... FARMERS WORK WITH SCIENTISTS TO MAKE FARMING EASIER! ALL FARMERS NOW GOING BACK TO FIELDS! FOOD CRISIS IS OVER!"



Hey! Where are you going?

Now that I know what traits my plants need I'm going back to my fields. I've got food to grow!



Yay! Food! Let's Eat!

YEAH, I'M STARVING!

### Wait a Minute!



Check out my DNA Decoder Activity on the back page!

There's one more thing I'd like to say. There are four **BASES** inside of **DNA**

These **BASE** pairs are the secret to all those special **TRAITS**. The order that they come in decides what's on our plates.

The bases are the **MOLECULES** called **A, T, G, and C**. They join to form a code that is read in groups of three.

The code is like a language that the **CELL** translates into things called **PROTEINS** that combine to make the **TRAITS**.



Hey, do you hear something?



BBRRRRRING!!!  
Okay everyone, that's the lunch bell. That means you too Caitlin. Wake Up!



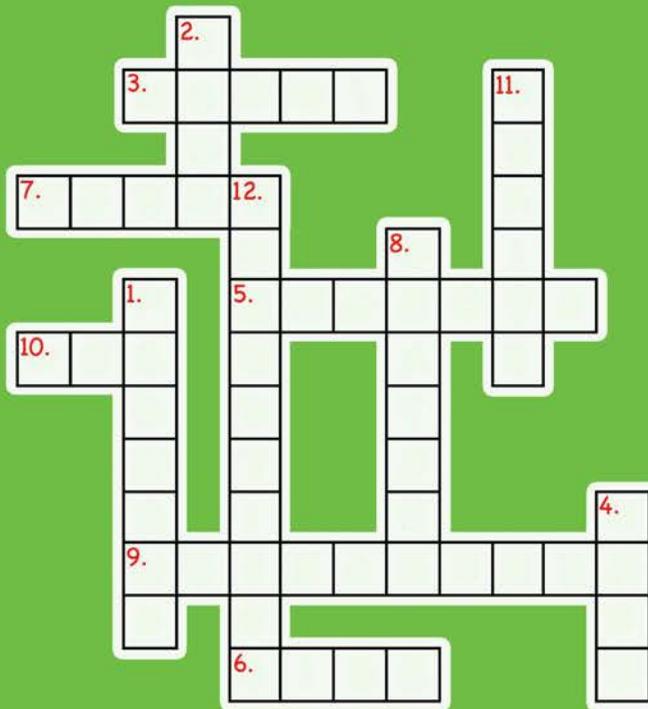
Whoa... What a cool dream!

# Caitlin's Crossword

Help Caitlin tell her friends about her dream by filling in the blanks and entering the words into the crossword puzzle.

I fell asleep in class today and had the weirdest dream! In my dream the (1)\_\_\_\_\_ had all gone on vacation so there was no (2)\_\_\_\_\_. When I looked in the cupboard for something to eat there was nothing but a talking cockroach named (3)\_\_\_\_\_. We went to a farm and talked to the farmer. He said that it is hard to (4)\_\_\_\_\_ food because (5)\_\_\_\_\_ eat the crops, plants get (6)\_\_\_\_\_, (7)\_\_\_\_\_ choke the fields and sometimes there is bad (8)\_\_\_\_\_ with too much wind and rain. Then this weird Scientist, the Rappin' (9)\_\_\_\_\_, shows up and starts rapping about (10)\_\_\_\_\_. He says that DNA is what makes all the different (11)\_\_\_\_\_. Different traits in plants tell whether or not a plant will get sick or can stand up to weeds. So, Mochi and I figured that the (12)\_\_\_\_\_ should work with the farmers to choose plants with traits that make them easier to grow. Then the farmers went back to work and we all had food!

THE END!



# Food for Thought!

Think about what kinds of food farmers need to grow so that Mochi can grind his Ono-licious Saimin.....



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College of Tropical Agriculture and Human Resources

USDA - Agricultural Research Service

## DNA Decoder Activity

Answer this silly question by using the decoder key to figure out which letter goes with each coded set of 3\*

Question:

**Why did Mochi eat at a Bank?**

Answer:

agc ttc    ctc gtc ccg tca ttc gtg

tca cac    ttc gtc tca

att ggg cta agc    aac cac cac gtg !

\*The base "+" changes to "u" in transcription, when the DNA is read in the nucleus.

### Decoder Key:

**A B C D E F G H I**  
gtc aaa cta gtg ttc aac tag agc ggg

**J K L M N O P Q R**  
tga tcc aat aca ccg cac aga taa att

**S T U V W X Y Z**  
ttg tca caa aag ctc ttt atc ccc