

# Bit and Byte Go Fishing with Scratch

MAKE A GAME



WITH SCRATCH

art by  
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SURE! THERE'S A PROGRAM CALLED **SCRATCH** WE CAN USE TO MAKE GAMES. IT'S FREE ONLINE, JUST GO TO [SCRATCH.MIT.EDU](http://scratch.mit.edu).

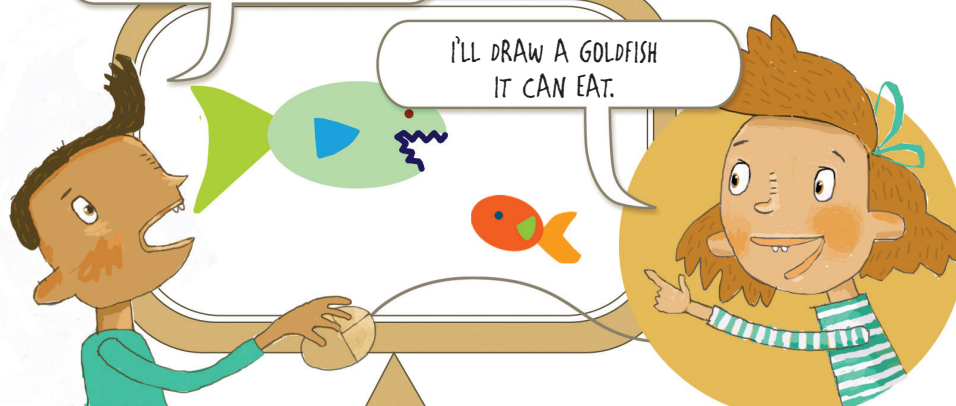
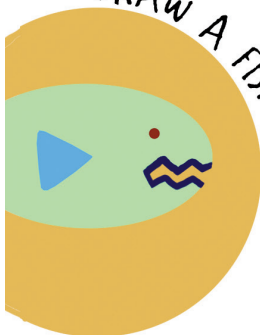


COOL! GAME HACKING! HOW ABOUT A CHOMPING GAME?

I'LL DRAW A BIG HUNGRY FISH IN THE DRAWING SCREEN.

I'LL DRAW A GOLDFISH IT CAN EAT.

DRAW A FISH




art © 2013 by Amanda Shepherd

Scratch is a free programming language made especially for kids and anyone else who wants to learn to boss computers around. Scratch builds programs out of

command blocks that fit together like Lego pieces. Each of these pieces tells you what it does, and the shapes show you how they fit together. You can use Scratch to


make games, cartoons, dancing birthday cards, virtual paper dolls, music videos, moving art, mazes, photo galleries, and all kinds of other fun projects.



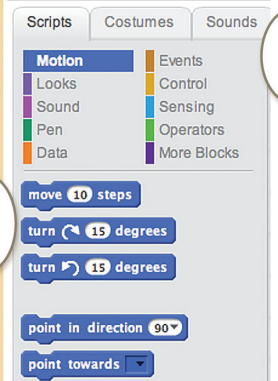
HOW DO WE MAKE THEM MOVE?


CAN'T WE JUST WRITE IN THE RULES — BIG FISH EAT LITTLE FISH?

• SNAP TOGETHER



A PROGRAM FOR EVERY FISH . . . WEIRD.






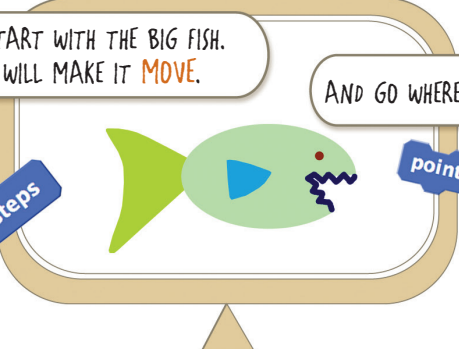
WE SNAP THESE BLOCKS TOGETHER TO TELL THEM WHAT TO DO.

COMPUTERS DON'T WORK LIKE THAT. IN A COMPUTER GAME EVERY PIECE THAT MOVES HAS ITS OWN INSTRUCTIONS.


## • MAKE YOUR FISH MOVE



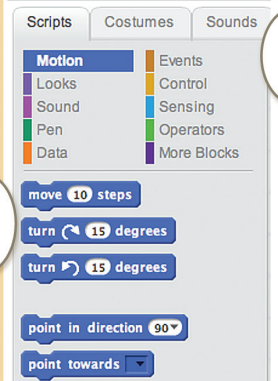
LET'S START WITH THE BIG FISH. THIS WILL MAKE IT **MOVE**.




AND GO WHERE I POINT THE MOUSE?

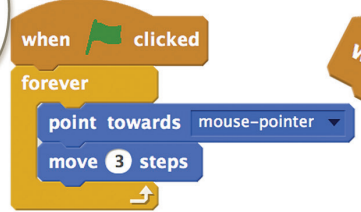


I BET THIS MAKES IT **START** WHEN YOU CLICK THE GREEN FLAG.





IF WE ADD THIS IT WILL KEEP FOLLOWING THE MOUSE, NOT JUST DO IT ONCE.



### Meet the Inventor!

Scratch was invented by Mitch Resnick and his friends at the MIT Media Lab. We sent Ace Reporter Marvin to ask him some questions.



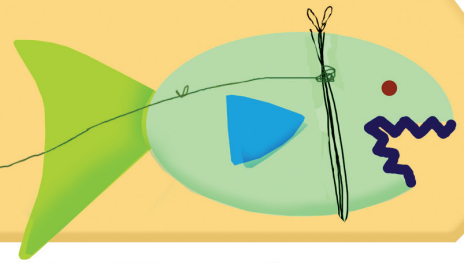
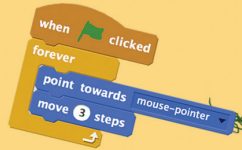
Where did you get the idea for Scratch?



A group of us from MIT worked with teens at an after-school community center called the

Computer Clubhouse. They wanted to create their own games and animations, but they could not find any good software to do it. So we decided to create Scratch to help them.

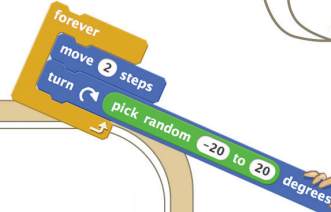
THAT WORKS! THE BIG FISH  
FOLLOWS THE MOUSE!



NOW FOR THE SMALL FISH.  
LET'S MAKE IT **SHOW** UP AND  
**POINT** RIGHT.



AND THEN CHANGE DIRECTION  
EVERY TWO STEPS.



SNAP THOSE TOGETHER AND ADD A  
FLAG BLOCK TO MAKE IT START!

I ALWAYS DO  
EXACTLY WHAT  
I'M TOLD.



## MAKE IT BETTER >

WAIT!! AAAGH!  
IT'S SWIMMING OFF THE SCREEN!!!



YOU NEVER TOLD  
ME TO STOP!

if on edge, bounce

TRY ADDING THIS.  
THAT SHOULD FIX IT.



### Who's the Boss? You!

Many Scratchers start by exploring projects other kids have made. If you spot one that looks interesting, open it up to

see the program blocks that make the game work. Unlike other computer games, in Scratch if you don't like the rules or have an idea to make the game better, you

can change it. Double the scoring! Make the fish different colors! Speed it up! Add a zebra, or a party horn sound, or a picture of yourself! Go wild!





Isn't it cheating to copy other people's games?



It's OK to copy other people's projects as long as you add something new and give credit for

the parts that you copied. Often, the most creative projects are collaborations, when one person adds to the work of someone else.



What would you like kids to do with Scratch?



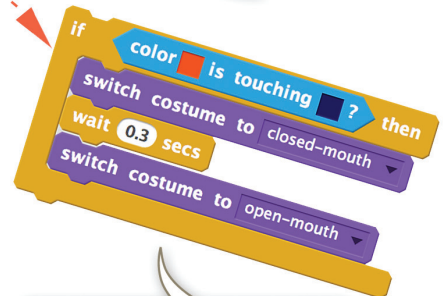
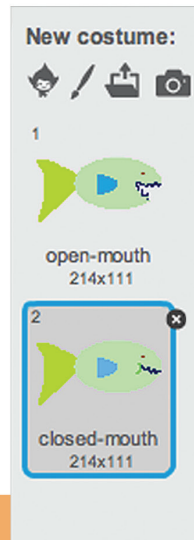
I want kids to let their imagination run wild. I'm always excited when kids create Scratch projects that I never imagined.



WOULDN'T IT BE COOL IF THE BIG FISH CLOSED HIS MOUTH WHEN HE ATE THE LITTLE FISH?

HOW DO WE DO THAT?

SEE THIS TAB CALLED **COSTUMES**? IF YOU DRAW ANOTHER PICTURE WITH HIS MOUTH CLOSED AND PUT IT IN THERE, WE HAVE TWO COSTUMES, **OPEN-MOUTH** AND **CLOSED-MOUTH**. THEN . . .



I GET IT—WE TELL IT TO **SWITCH COSTUMES** WHEN THE BLUE TEETH TOUCH THE ORANGE FISH! AND THEN SWITCH BACK! CHOMP!

## ADD ANIMATION



I WONDER WHAT THIS BUTTON DOES? HEY, LOOK! IT MAKES MORE COPIES OF THE LITTLE FISH. COOL!



SO IT'S EATEN THREE FISH AND NOW THEY'RE ALL GONE. THAT'S A SHORT GAME! HMM . . . LET'S ADD THIS TO MAKE THE SMALL FISH **SHOW** UP AGAIN AT A RANDOM PLACE AFTER IT'S BEEN EATEN, SO IT LOOKS LIKE A NEW FISH. NOW WE HAVE ENDLESS FISH!



### Share and Share Alike

Sharing is a big part of Scratch. That means sharing the games you've made—and also your ideas for how to put the blocks

together. No one owns the way to do something. Everyone benefits if good ideas are shared around—everyone's programs get better, and so does Scratch.

And if you get stuck, there's lots of other Scratchers to ask! So what are you waiting for? Jump right in!



You can find Scratch and play Bit and Byte's game at [scratch.mit.edu](http://scratch.mit.edu). Scratch is a project of the Lifelong Kindergarten at the MIT Media Lab.

SHARE YOUR GAME >

LOOK AT THE EXCELLENT GAME WE MADE! LET'S PLAY!! AND WE CAN SHARE IT WITH EVERYONE ON SCRATCH.

WAIT, HOW DO WE KEEP SCORE?

WE CAN FIGURE THAT OUT TOMORROW.



What were you like as a kid?



As a kid, I loved playing sports—and creating new games. I built my own miniature

golf course in my backyard. But when I was growing up, there were no computers in homes or schools. The first time I used a computer was in high school.



What would you like to say to the future Scratch community?



Keep on Scratching! I can't wait to see what you create with Scratch!