
Snow-tastrophe

Welcome to the Volunteer Facilitator Guide for this snowy robotics adventure! This curriculum is designed to be used with 4-H Cloverbud youth ages 5-7 years old. Being a 4-H volunteer means you will have an opportunity to help a young person develop his or her potential. Research indicates that if children are not introduced to STEM-related activities by the time they are in third grade, the likelihood of their pursuing STEM in the future declines significantly. By engaging youth early with experiential learning opportunities related to robotics, youth can develop the life skills necessary to be successful in a digital economy.

At first, becoming a robotics volunteer may seem overwhelming. It may seem that the youth are more knowledgeable about the technology and comfortable with the robot than you are; however, there are many areas in which you can contribute. You can provide a safe place for youth to engage in positive learning opportunities where they can develop a sense of belonging and purpose. By working with the youth in your club, you can place them on a path for future success. Another important purpose you have is to help youth learn how to persist in the face of difficulty. Learning to overcome obstacles – such as fixing a robot that refuses to work, debugging a program, or working with teammates who have differing views – are all important life skills. The primary focus should be on engaging Cloverbuds with meaningful fun where they can actively participate as an individual and within a team.

The Snow-tastrophe curriculum is designed around the Experiential Learning Model and the 4-H motto, “learn by doing.” In the experiential model, the first step is to allow the youth to explore with little to no help from you. This can be quite difficult to do. However, 4-H and robotics are rooted in the constructivist learning theory. Constructivist learning theory says that children learn best when they are able to experience things firsthand and construct learning from their environment. Each of the lessons is broken down into the five steps shown in the model.

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On a grey and cloudy day, Camila Mae looked out in dismay.
The weekend had come and gone, but she still had tasks to work upon.
Her homemade lab was all a buzz! You see, Camila Mae was ordinary by day,
But at home, inventing was her way to play.

When Camila Mae had time to think,
she went to her lab to create a stink.
On this particular afternoon, she was working on a
robot to send to the moon.
If only she didn't have to go back to school so soon!

As she sat at her table working away,
she didn't see her cat Vinnie had come to play.
Vinnie rubbed against the beakers and gave her homework a bat.
Then he landed on the test tubes with a big KER-SPLAT!

C – R – A – S – H !
Went the test tubes as they spilled to the ground.
Vinnie the cat did not stick around!
Camila Mae watched the puddle begin to bubble.
Vinnie the cat was in big trouble!

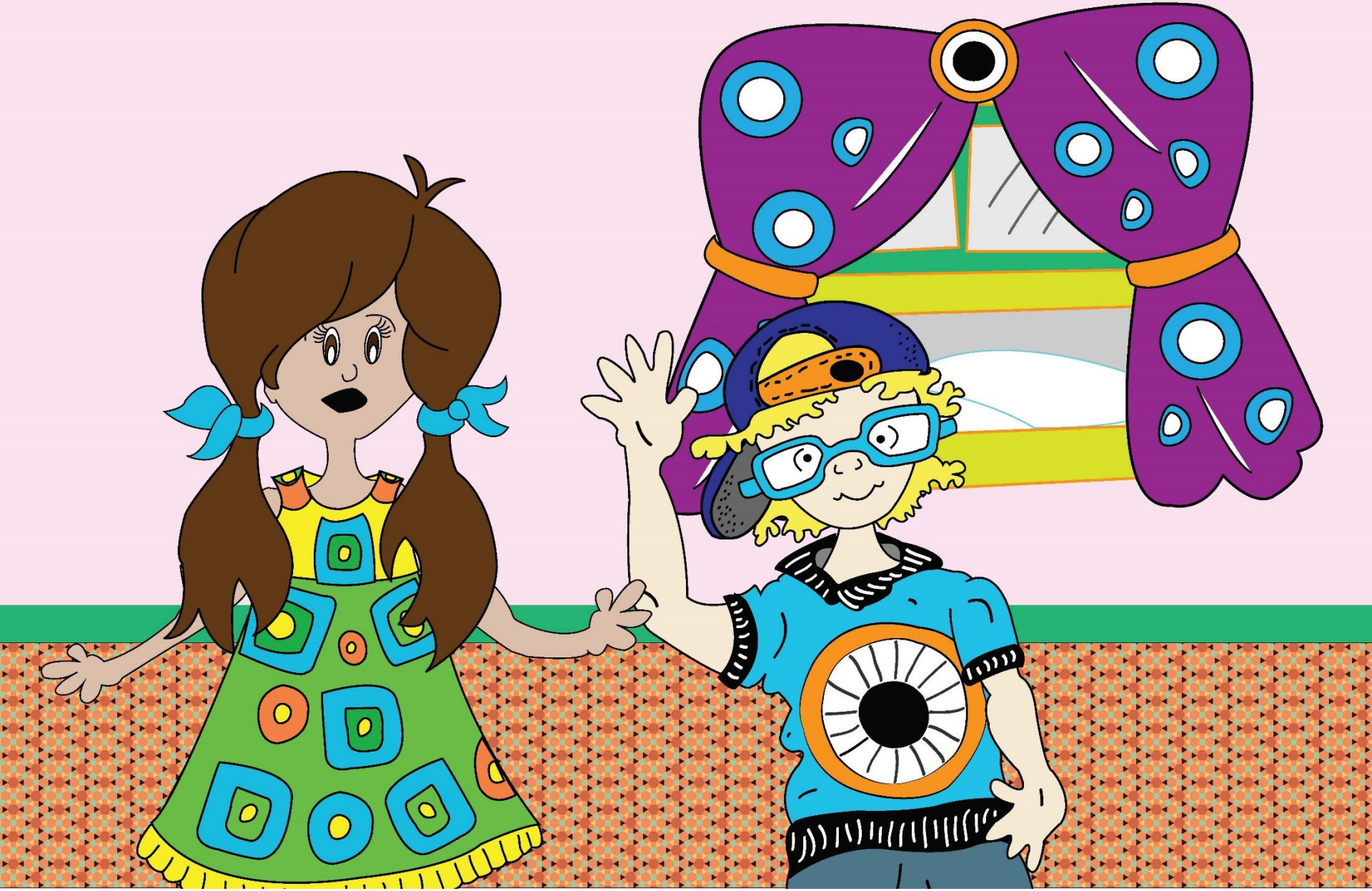
Looking closely, she saw little white flakes growing on her floor.
One flake, two flakes, four flakes, more! Before she knew it, they were out the door.
“What could this white fluff be? She wondered aloud.
Each flake had six sides, and the pile kept growing. She thought to herself, “It must be snowing!”

She raced to the window and opened it wide, but the growing snow pile pushed her aside.
Out the window it fell, into the yard down below, where it covered her friend Reed head to toe.

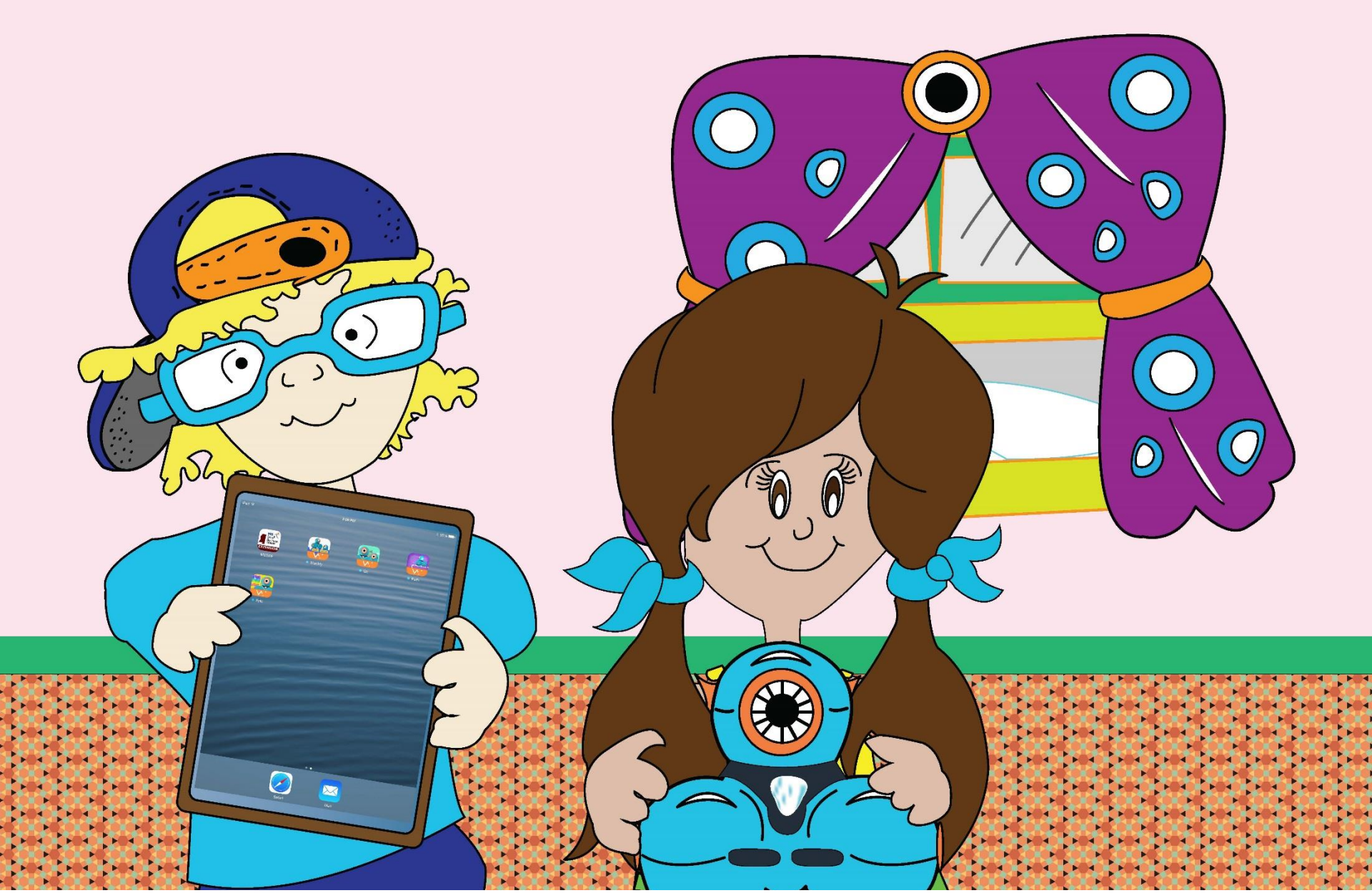
Reed looked like a snowman with his arms poking out.
He looked at Camila and said with a shout, “Hey, now! Look out!”
As Reed shook the snow off. Camila Mae ran out to see. The snow was still growing rapidly!

Camila Mae and Reed stomped back inside to figure out
what to do about the snow outside.
Marshmallows and cocoa warmed their hands as they held their cups…
But then they noticed the television truck had shown up!

They peeked out the window and what did they see, but a reporter they knew from local TV!
She said, “Reporting live from WCBI! The Governor’s concerned about this snow in July!
He’s declared a State of Emergency. Many homes are without electricity.
The trains have stopped running. No supplies are coming.
Traffic is stopped, and none can go out. It is a disaster, and there’s no doubt!”



Camila Mae and Reed slipped upstairs to discuss this distressing state of affairs.
“What should we do?” said Camila Mae. “The snow’s gotten higher and it’s in the way!
We must make it stop snowing.
We must do it today!”



Then an idea came to Camila Mae: “We can use Dash the robot to save the day.”
“Cool idea,” said Reed as he picked up his tablet.
“We will sound the alarm and call all our friends.
If we all work together, this nightmare will end!”

“SOS,” signaled Dash as Reed typed out the code.
“Urgent help is needed to clear these roads.”
One by one, their friends appeared on the computer screen.
They all said their robots would help them clean.

“First things first,” said Camila Mae, “we have to get rid of this snowy potion.
It has caused quite the commotion.”
Reed picked up some parts that were laying about. He made an arm for Dash to try out.
Into a liquid Camila Mae had made, Dash lowered his arm and then raised it and waved.
Tiny bubbles began to fly, and they captured the snowflakes as they went by.

Out on the street was another matter: the roads were still a snowy disaster.

Into the streets Dash must go to help clear away those piles of snow.
Reed messaged their friends, and each set to work, helping their robots adjust their torque.
Soon the robots were headed out to see what this mess was all about.
They soon found cars and trucks by the stack, all full of drivers in need of a snack.

Reed sent out a message: “What on earth should we do? I’m fresh out of ideas….are you?”
They all thought for a bit. They came up with a plan that was a perfect fit.
Reed and some friends began to code, so they could get those cars out of the road.

The friends programmed Dash to save the day and handed him some food set upon a tray.
Up and down the street Dash went, feeding those stuck in this snowy event.
Sneezing and shivering, some drivers had caught chill. Dash to the rescue to see who was ill.
It was quite the adventure, taking those drivers’ temperature!

The next task on the list for these coding friends was to
program Dash to remove broken limbs.
Tweaking this, adjusting that –
those coding kids had it all down pat!

They sent Dash out once again. “Be careful
out there, Dash,” Reed said to this friend.
“When you move the branches,
don’t touch the power lines.
One wrong move could light up your circuit and
blow your mind.”

Dash reached for the branches and missed by a glance.
Reed knew right away they’d need another chance.
Back to the code he tapped, tapped, tapped to get Dash back on track.
Soon those branches were coming down. Electricity was up and humming ‘round town.

The local reporter went live on TV
and told the town there was nothing to see.
Dash the robot and his friends
had brought this snowy mess to an end.

Back inside the laboratory, Camila Mae and Reed couldn't believe their crazy story.
They looked at each other and flopped in a chair.
When would their parents discover this snowy affair?
Vinnie the Cat was still taking a nap, as if he had nothing to do with this mishap.

All of a sudden, the telephone rang. Up from the chair Camila Mae sprang.
"This is the Governor!" the caller boomed. *"I'm calling to say you and your friends have saved the day!*
You all programmed brilliantly! From the disaster you did not run away.
In honor of you, I hereby proclaim Mississippi's Youth Programming Day!

“Wow,” said the friends, who were listening in,
“Let’s find a new programming adventure to begin!”
Camila Mae and Reed looked at each other and laughed out loud.
Camila Mae said, “Oh, no, no, no! We must recharge before we tackle more snow.”

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http://www.connectmississippi.org/