LYLA IN THE LOOP

STU O' CLOCK Activity Cards

LYLA IN THE LOOP is a funny and engaging animated series for kids ages 4-8 about **LYLA LOOPS** and her fantastical blue sidekick, **STU**, who use creative and strategic problem-solving and critical thinking skills to help their family, friends, and community!

From building homemade carnival games to creating a new sandwich for the family restaurant– Lyla, Stu, and the whole Loops crew tackle challenges with equal servings of humor and heart.

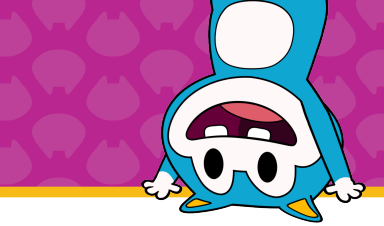
 Lyla in the Loop is produced by Mighty Picnic in Association with Pipeline Studios. Major funding for *Lyla in the Loop* is provided by: a Ready To Learn Grant from the U.S. Department of Education; the Corporation for Public Broadcasting, a private corporation funded by the American People; and public television viewers. The contents of this program were developed under a grant from the Department of Education. However, those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government. The project is funded by a Ready To Learn grant [PR/ Award No. S295A200004, CFDA No. 84.295A] provided by the Department of Education to the Corporation for Public Broadcasting. PBS KIDS and the PBS KIDS Logo are trademarks owned by Public Broadcasting Service. Used with permission.

IT'S STU O'CLOCK!

This set of cards has over **45 ACTIVITIES** to help build computational thinking skills – just like the characters do in the TV show, *Lyla in the Loop*.

Lyla in the Loop is a **PBS KIDS** series for learners ages 4-8.

Computational thinking is all about problem-solving. It's a way to make complicated tasks more manageable.



COMPUTATIONAL THINKING SKILLS are often used by engineers and computer scientists for coding, building, and designing, but they're not just used in those jobs!

When you have a problem, do you plan and break it down into smaller parts?

If so, you're already using these skills. These skills are helpful in everyday life and prepare young learners for jobs that require computational thinking.

The Stu O'Clock cards are designed by educators to guide and nurture your children's computational thinking skills.

GLOSSARY

ABSTRACTION

Simplifying something by only thinking about the important features (color, shape, size, etc) that are needed to get a task done.

ALGORITHM

Step-by-step instructions where the order matters to achieve a goal.

CONTROL STRUCTURES

Rules that determine which step is to be completed next.

DEBUGGING

Figuring out why something is not working and fixing it.

DECOMPOSITION & MODULARITY

Understanding that complicated things can be broken down into smaller parts & used in different ways.

GLOSSARY
CONTINUED

THE DESIGN PROCESS

Practices that are used to solve problems and make improvements.

HUMAN COMPUTER SYSTEMS

People and computers each have different strengths, and they can work together to solve problems.

REPRESENTATION

Ideas and information can be shown through images, symbols, movements, and sounds.

SOCIAL EMOTIONAL SKILLS

Skills for managing emotions and building healthy relationships.

LET'S PLAY!

Have a few minutes to entertain your brain?

That means it's
Stu O'Clock!

Each card in this deck has a quick activity for kids and grownups that gets you thinking outside of the box using computational thinking skills.

THERE'S NO WRONG WAY TO PLAY!

TYPES OF ACTIVITES

There are four types of activities in this deck. Their icon will always appear in the top right corner of the card to help find the best activity for you.

TALK IT OUT
Discuss the topic together!

MOVE IT
Move your bodies to play!

IMAGINE THAT
Use your imagination!

DOODLE & DESIGN
Draw with pen and paper!

HOW TO PLAY!

1

Flip to a card.
Any card!

2

Read it out loud.

3

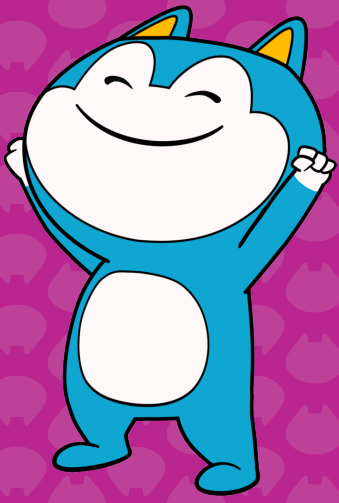
Play the activity together.

4

Read the back of the card to learn details about the skills you just used and see examples from everyday life.

5

Repeat!



Trash to Treasure

Think of something we threw away this week.

Let's come up with all the different ways we could use it again instead of throwing it out!

DECOMPOSITION & MODULARITY

DECOMPOSITION is breaking something down into smaller parts and **MODULARITY** is reusing those parts for a new purpose.

WHY IS IT IMPORTANT?

Every time you re-use an object for a new purpose, you're practicing computational thinking *and* being eco-friendly. Double win for that shoebox-turned-art-supply-box!

Deli Dream Up

Let's imagine we are making a special sandwich together.

We each get to choose three things to put inside. Share what you chose.

Would you want to eat it?

How can we work together to make it better?

SOCIAL EMOTIONAL SKILLS

COLLABORATION
is talking about everybody's different ideas and working together to solve a problem.

WHY IS IT IMPORTANT?

Teamwork makes the dreamwork!

Collaboration is useful wherever people work together: in jobs, at school, on sports teams, in families, and more.

Tricky Tasks

Let's pretend you're teaching someone how to clean their teeth **without** using the words:

BRUSH
TOOTHBRUSH
TOOTHPASTE

How would you explain each step?

Now...

try to describe a different activity without using three important words.

ALGORITHMS

An **ALGORITHM** is just another way of saying "step-by-step instructions" where the order matters.

WHY IS IT IMPORTANT?

Computer Engineers first have to think about the steps they want the computer to follow before they create the code telling the computer what to do.

I Spy... Patterns

Patterns are all around us; you just need to look or listen carefully.

In this **"I Spy"** game, describe a pattern near you and see if the other player can find it.

Patterns could be on clothes, in bird sounds, in how people walk and more.

BE CREATIVE!

See what you can find that repeats in a pattern!

CONTROL STRUCTURES

A **LOOP** is a **CONTROL STRUCTURE** with repeated steps in a pattern.

CONTROL STRUCTURES are rules that determine which step is to be completed next.

WHY IS IT IMPORTANT?

Patterns are all around us!

Being able to recognize patterns, like in seasons, animal behaviors, and music can help us organize and make sense of our world.

Person, Robot, Magic

Think of three chores or tasks you do every day. Now imagine one could be done by magic, a robot, or yourself.

Would you like a robot to tie your shoes or your room cleaned by magic?

Choose an activity to be done by magic, one for a robot to do, and one for you to do yourself.

Why did you decide that way?

HUMAN COMPUTER SYSTEMS

It's important to understand what things computers can do,what things people have to do, and how people and computers can work together.

WHY IS IT IMPORTANT?

Computers and people work together to complete everyday tasks like getting places. A person puts a destination into a map app, but then it's up to the person to follow the directions to the destination.

Emoji Motion

2 PERSON GAME!

Have one person choose or draw three emojis in a row that another person cannot see.

The chooser performs three body movements that are inspired by the emojis.

The drawer then has to guess which emoji they are acting out.

After watching, the other person gets to choose or draw the three emojis.

Now Compare!

Did the guesser get close? Swap roles. Repeat.

REPRESENTATION

REPRESENTATION is the idea that a picture, sound, movement, or anything can can be used to mean something.

EMOJIS are a good example of **REPRESENTATION** because people think of smile faces as a **REPRESENTATION** of a happy face.

WHY IS IT IMPORTANT?

There are symbols all around us that give us information. Stop signs, doorbell chimes, the triangle shape that means "play" on a video: **SYMBOLS ARE EVERYWHERE!**

Samesies

Choose two things you see around you, like a pen and a stapler.

Think of two ways they are the same.

Then, pick one more thing and find one way all three are alike.

ABSTRACTION

ABSTRACTION
is simplifying something that is complicated by only thinking about the important information that is needed to get a task done.

WHY IS IT IMPORTANT?

Video game designers group similar code together, like putting all the code for earning points in one group and all the code for character movement in another. This allows them to focus on specific tasks while coding.

Groove Loop

Create a dance made up of 3-5 moves.

Teach them to someone step by step and have them do it in a loop (over and over).

Then play some music!

See how the dance goes with different songs.

ALGORITHMS

ALGORITHMS
are step by step
instructions that need
to be followed
in a specific order.

WHY IS IT IMPORTANT?

You're using an algorithm when you're baking a cake or building new furniture. Following an algorithm like a recipe or building instructions allow you to meet your goal.

Doodle Swap

2 PERSON GAME!

Start by drawing something simple, like a tree.

The next artist then turns a part, maybe a leaf, into something new, like a butterfly.

See how long you can keep it going, changing a part of the last drawing into something new!

DECOMPOSITION & MODULARITY

MODULARITY
involves combining parts of different things to make something new.

WHY IS IT IMPORTANT?

A visual designer tries out many different combinations of shapes, lines and colors, and works with others to create their finished design.

Silly Ten

Write the numbers
1 through **10**
on small slips of paper
and place them in a hat.

Make rules for what silly
things you will do if you
pick each number
from the hat.

EXAMPLE

You will cluck like
a chicken if you draw any
number above 8
OR
If you draw the number 1,
hop on one foot five times.

CONTROL STRUCTURES

CONTROL STRUCTURES is a computational thinking phrase that means "rules about what to do and when."

WHY IS IT IMPORTANT?

Most Computer Engineers use conditional words like "if," "then," and "else" in their code to tell computers when to follow certain instructions.

Sign Redesign

You have been asked to redesign the **STOP** sign.

What would you put on it to show cars to stop? Why?

Pick another street sign and recreate it!

REPRESENTATION

Visual symbols
REPRESENT ideas
with pictures.

WHY IS IT IMPORTANT?

Graphic designers
try to make signs that
mean the same thing
to different people.

These designs can help you
find the things you need,
like a bathroom
or cafeteria!

They draw many different
symbols before they find
one that everyone
can understand.

Plot Twist

Have you heard the story of the three little otters who built their houses out of straw, sticks, and CANDY?

Add a twist to a classic story by changing characters and details.

Start from the beginning and tell the new story in order.

See if others can figure out what you changed and what the original story is.

ALGORITHMS

ALGORITHMS are step-by-step instructions where the order matters to achieve a goal.

A story is an **ALGORITHM** because it requires certain events to go in order - knowing the algorithm of the story allows us to tell and retell it!

WHY IS IT IMPORTANT?

In school, it's helpful if kids can take things like stories, science experiments, or art projects and break them down into smaller steps. They're using computational thinking to solve problems!

Pass the Pencil

Play a collaborative drawing game to see if your team can make a picture together one line at a time.

As a team, decide what to draw and when it's your turn, add one line.

See your picture grow.

When it's done, step back and admire your teamwork.

SOCIAL EMOTIONAL SKILLS

COLLABORATION
is sharing and combining ideas with others.

WHY IS IT IMPORTANT?

To make a TV show, like *Lyla in the Loop*, artists, writers, and voice actors must collaborate to make the story come together.

Rainbow Roadway

Guess what color the next ten cars will be.

Choose a color first. Then watch the next ten cars that drive by safely and keep track of which color you see the most.

See which color has the most cars, and guess if it will win again if you play another round!

ABSTRACTION

ABSTRACTION is when you think about something simply; this can be done by interpreting data in a chart and figuring out what is important.

WHY IS IT IMPORTANT?

Researchers gather information and then put it into charts and graphs to see if there are any patterns or trends they can focus on.

Change of Plans

Talk about your day and share what happened.

How did you start? What came next?

After you've shared your entire day, the listener will change one thing about it.

For example, imagine if your teacher had been absent or if there had been a snowstorm.

NOW share what your day would have been like with that change.

CONTROL STRUCTURES

CONTROL STRUCTURES involve thinking ahead or reflecting on the past to determine cause and effect.

WHY IS IT IMPORTANT?

Journalists are writers that try to explain why things happen.

They ask lots of questions and do a lot of research to figure out the **CAUSE** of events that **AFFECT** people all around the world.

It's A Sign

Think of a sign, like **'TURN OFF THE WATER.'**

Make a sign without words and see if someone else can guess its message.

Then, tell them what your sign means.

Discuss ways you could improve it.

REPRESENTATION

Visual symbols
can represent objects
and ideas.

WHY IS IT IMPORTANT?

In math class, kids learn symbols like **+**, **−**, and **=** that represent important math concepts like addition, subtraction, and equals.

Sequence Scramble

Do you put on your shoes before your socks?!

That seems silly.

Think of something you often do that must be done in a particular order, or else it wouldn't make sense!

Describe a new wacky order of this process step by step.

ALGORITHMS

An **ALGORITHM** is a series of steps that has to be done in a particular order.

WHY IS IT IMPORTANT?

We all use algorithms every day.

They help us complete routine tasks (like putting on a shirt) on "auto-pilot."

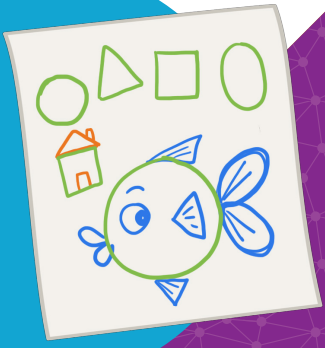
Thanks to algorithms, these routine tasks become easier.

Shape Shift

Draw 4 shapes
at the top of a page.

Then, take turns making
the shapes into new things
like **A FISH, A DOG,
A BOAT, OR A CAR!**

**See how many
different things you
can make.**



DECOMPOSITION & MODULARITY

MODULARITY
is rearranging the parts of something to make something new.

WHY IS IT IMPORTANT?

Kids practice modularity every time they build a creation out of blocks (or couch cushions, or cardboard boxes, etc.), knock it down, and then build something new with the same parts.

Homemade Carnival

Who's up for ring toss?

What's your favorite carnival or arcade game?

Imagine how you could make your own version at home with items you already have.

Try building and playing it!

THE DESIGN PROCESS

Different practices combined come together to solve a problem or make improvements.

WHY IS IT IMPORTANT?

Toy makers use the design process to help create and improve their ideas.

Sometimes, this means that they have to try over and over before they meet their goal.

Once Upon A Word

2+ PERSON GAME!

With **TWO** or more people, make up a story, **ONE WORD AT A TIME.**

Go back and forth, adding one word at a time to create the story.

SOCIAL EMOTIONAL SKILLS

COLLABORATION
is sharing and combining ideas with others.

WHY IS IT IMPORTANT?

Just like students collaborate with each other, teachers, principals, custodial workers, and other adults work together to make school possible for students!

No Repeat Retreat

Get across a room by doing actions other teammates tell you to do.

Actions can include stepping, crawling, jumping, rolling, or hopping!

Each move can only be used once, so think of fun new ways to get to the other side!

ALGORITHMS

An **ALGORITHM** is a set of step-by-step instructions.

WHY IS IT IMPORTANT?

Coaches use algorithms when teaching new sports skills.

They share the steps to swim backstroke or dribble a basketball.

Good coaches share easy-to-follow algorithms!

Hybrid Hobbies

Do you like painting?
How about jumping rope?
What about painting while jumping rope?
JUMP ART!

Mash up two things you like to do to create a new activity.

Get silly and give your new creation a name.

DECOMPOSITION & MODULARITY

MODULARITY
involves combining parts of different things to make something new.

WHY IS IT IMPORTANT?

Modularity helps with creative problem-solving.

For example, if you're trying to wrap a present but don't have wrapping paper, you can use a page from a newspaper or magazine page.

If...Then Hot Potato

2+ PERSON GAME!

It's an extreme game of hot potato!

Instead of passing just one item, pass 2-3 items but make conditions for each item.

Example:
IF you hold the teddy bear, **THEN** you have to pretend you're a chicken!

What silly "if...then" rules can you come up with?

CONTROL STRUCTURES

CONDITIONALS, a type of **CONTROL STRUCTURE**, are rules that help decide what to do based on different situations using phrases like "if/then/else."

WHY IS IT IMPORTANT?

Chess players think about **IF/THEN** scenarios to help them win.

They always have to think ahead, like: **IF** the other player moves the knight to that spot, **THEN** I will move the pawn to that spot.

Dream Day

Your job is to make a super fun day for someone else.

First, ask them about the things they love to do.

Then, use their answers to make a plan for a perfect day that they would really enjoy.

When you're done, show them your plan and see what they think!

THE DESIGN PROCESS

When designers interview the person they're making something for, that's the **ASK** step of the **DESIGN PROCESS.**

WHY IS IT IMPORTANT?

User Researchers interview people that might use a new product (like an app, device, or computer game).

This helps designers make products better for the people that use them.

Room Robots

Make an easy and safe obstacle course with everyday materials like books and pillows.

Start at one side of the room. Then, tell the player exactly what to do, like **"TAKE THREE STEPS LEFT, JUMP OVER THE PILLOW, SKIP THREE TIMES."**

Try to give all the steps at once and see if they can follow them to reach the other side of the room.

ALGORITHMS

When making a list of step-by-step instructions for someone else to follow, children are creating an **ALGORITHM**.

WHY IS IT IMPORTANT?

Chefs are good at creating cooking algorithms.

They teach the other chefs a recipe they can easily follow, so the dish is made the same way every time.

1-2-3 Step Treasure Hunt

2 PERSON GAME!

Play a treasure hunt game by hiding something in a room.

The person looking for the treasure starts from a spot they choose.

You can only give them three instructions, like **"TAKE THREE STEPS BACK, TURN AROUND, STEP LEFT."**

See if these clues help them find the treasure!

ALGORITHMS

ALGORITHMS are a list of instructions where the order of the steps matters.

WHY IS IT IMPORTANT?

You're following an algorithm when you're using a navigation app.

The app tells you step-by-step directions to follow, and if you don't go in the right order, you'll get lost!

Button Bash

2 PERSON GAME!

Do you like playing games with a controller? What if you could use a controller to make someone move?

Draw a controller with 4 circles and put just one letter in each circle: **A, B, C, or D.**

Decide a move for each letter, like '**A**' means jump and '**B**' means wiggle.

Press the buttons and watch the person do those moves.

Change the moves to keep the fun going!

CONTROL STRUCTURES

One type of **CONTROL STRUCTURE** is an event.

An **EVENT** is a signal that tells a computer program to follow specific steps.

WHY IS IT IMPORTANT?

Video game developers put a lot of events in their code so that the game knows how to respond when the player makes a certain move or presses a certain button.

Mary Had a Little Lamp

2 PERSON GAME!

Find the lyrics to a favorite song and sing it, but make some mistakes in the words on purpose.

See if the person listening can catch the mistakes and change them back to the actual lyrics.

DEBUGGING

DEBUGGING is a Computational Thinking way of saying "figuring out what's wrong and fixing it."

The word comes from when actual bugs would get into computers, causing them to not work, so engineers would really have to debug them!

WHY IS IT IMPORTANT?

If a website is down or glitching, a web developer needs to figure out what went wrong in order to fix it - that's debugging!

Rock, Paper, Sprinklers

2 PERSON GAME!

Make up your own version of rock, paper, scissors!

Think of different hand signs and make up rules about which one wins against the others.

Talk about what happens when two signs go against each other.

CONTROL STRUCTURES

A **CONTROL STRUCTURE** is a rule that determines what step is completed next.

WHY IS IT IMPORTANT?

Control structures keep us safe!

When at a crosswalk, we wait for the walking signal. Once we see it, we know we can cross the street safely.

How Was Your Day?

2 PERSON GAME!

Tell someone about your usual daily routine.

Go through your schedule in order, explaining what you do on a typical day when you're not together.

Try to learn at least one thing about each other's day.

Compare your days and figure out what is similar and what is different.

ABSTRACTION

ABSTRACTION involves noticing attributes (like size, shape, and color) and grouping them by their common characteristics.

WHY IS IT IMPORTANT?

Children practice abstraction when they compare attributes of their schedules.

Plans can be grouped by location, time of day, type of activity, and more!

Bottle Challenge

Try flipping a water bottle so it stands up straight when it lands.

If you couldn't do it, what could you do differently to make it stand up?

What makes it land upright?

THE DESIGN PROCESS

One part of the **DESIGN PROCESS** is **TESTING AND IMPROVING**.

This is when designers try something out and then make changes to make improvements!

WHY IS IT IMPORTANT?

Think about your favorite book! It took a lot of edits to get to that final product! The author had to write many drafts of stories, improving things with each version, before they got to the story that works best.

Nomis Says

2 PERSON GAME!

Play a twist on **SIMON SAYS** where you do the opposite of what Simon says!

When Simon tells you to do something, think of what the opposite action would be and do that instead.

The fun part is figuring out each opposite action.

CONTROL STRUCTURES

CONTROL STRUCTURES are instructions that are carried out when signaled.

In this game, the signal is **"Simon Says!"**

WHY IS IT IMPORTANT?

Ring! It's time to wake up!

That's an example of a control structure that we may use every day.

We wait for the alarm (the signal) to get our day started.

Group It Up

Collect TEN different items.

Sort them into groups based on things like color, material, or other features.

Try to make it **MORE CHALLENGING** by creating a rule that sorts the items into the fewest number of groups possible.

ABSTRACTION

ABSTRACTION involves noticing attributes (like size, shape, and color) and grouping them by their common characteristics.

WHY IS IT IMPORTANT?

Abstraction is used when dishes are put away. Silverware might be organized by forks, knives, and spoons. Plates might be put away in two separate stacks - one big and one little.

This makes it easier to find later.

Guess What You're Doing

2 PERSON GAME!

This game is like **CHARADES,** but one person gives another person actions to do.

The person doing the actions doesn't know what they are acting.

They have one minute to correctly guess what they are acting based on the movements they are told to do.

For example, tell the actor to put their arms up like the letter **"Y"** and move them up and down.

The actor might guess, **"Am I flying?"**

ALGORITHMS

Creating an **ALGORITHM** (step-by-step instructions), involves explaining steps so that someone can follow them.

WHY IS IT IMPORTANT?

Algorithms are used in morning and bedtime routines.

Every day, the routines involve the same steps, like brushing your teeth and getting dressed.

The order of the steps also matter – you don't put your pajamas on before you take a bath!

Stay in the Loop

2 PERSON GAME!

Create a list of five different sounds, like:

Beep
Shh
Bam
Grrr
La

REPEAT THESE SOUNDS IN A LOOP.

When one player stops, the next player must continue the loop from where it was left off.

STAY ALERT!

As the other player can stop at any moment, and you'll need to keep the loop going without missing a beat!

CONTROL STRUCTURES

A **LOOP** is a type of **CONTROL STRUCTURE** that is a set of steps that repeat.

WHY IS IT IMPORTANT?

Music composers make loops when they write songs with repeating beats.

Listen to your favorite song to see if you can catch a loop!

Dream Outfit

2 PERSON GAME!

Partner up and design the perfect outfit for each other.

To do that, you need to learn more about each other and things they like to learn.

GET CREATIVE!

Draw out your ideas, get feedback and redesign based on what the wearer likes and dislikes.

THE DESIGN PROCESS

The ask step in the **DESIGN PROCESS** is when the designer asks the "**USER**" about their needs.

The "**USER**" is the person who will eventually use the product.

WHY IS IT IMPORTANT?

When choosing a present for someone, it's important to ask them what they like first.

That way you can get or make something special just for them.

Mess Be Gone!

Think about something in your home that's always messy, like your toy box or sock drawer.

Talk about a plan to sort things into groups to make it neater.

Try this plan for a week and see if it works.

ABSTRACTION

ABSTRACTION is when you think about something simply, which involves looking at its properties and sorting them based on color, shape, size, and other features.

WHY IS IT IMPORTANT?

Looks like it's gonna be a rainy day!

The weather forecast uses abstraction to provide the information that's needed.

So a person wouldn't need to be a meteorologist to decide if they need an umbrella!

Loopy Robot

Imagine you have a robot that can help you but only do three moves in a loop.

What three actions would you have it do, and why would you choose those?

CONTROL STRUCTURES

A **LOOP** is a type of **CONTROL STRUCTURE** that is a set of steps that repeat.

WHY IS IT IMPORTANT?

A hair braid is considered a loop. Pieces of hair get added in the same pattern over and over until there is no more hair to add, and the loop ends.

Traffic Mime

2+ PERSON GAME!

In this game, pretend all the street signs have disappeared and it's up to you to help out.

One person will say different street signs like:

One Way, Stop or **Do Not Enter**

The other person then uses their body to act out these signs.

TEAM UP!
Be creative with your actions.

REPRESENTATION

REPRESENTATION
is when you use something (like a body movement) to mean something else (like a traffic sign).

WHY IS IT IMPORTANT?

Movement symbols are used every day.

When students raise their hands, they are letting a teacher know they want a turn to talk.

Origami Mystery

Search for a picture of an origami design you like.

Without reading any instructions, try to figure out the steps to make one just like it.

Share your steps with someone and see if it leads to the same design.

ALGORITHMS

Part of creating an **ALGORITHM** (step-by-step instructions) is breaking an activity down into smaller steps first.

WHY IS IT IMPORTANT?

A makeup artist might look at a photo and figure out the steps to recreate the look.

If...Then Plan

What makes you nervous? **TRY AN 'IF...THEN' PLAN.**

For example, if you're sad at school missing your family, then keep their picture in your pocket.

What 'if... then' plans could help with your fears or emotions?

CONTROL STRUCTURES

A **CONTROL STRUCTURE** can help you make a plan so you know what to do if something happens.

WHY IS IT IMPORTANT?

A control structure helps us make plans and stay flexible - like if it rains you can play inside, but if it's sunny, you can go outside!

Picture This!

2 PERSON GAME!

Imagine a picture you want to draw, like a dog playing in a park on a sunny day.

Tell another person about your idea and let them draw it.

When it's done, look at the picture and talk about how it matches and differs from what you imagined.

Take turns being the artist!

ABSTRACTION

ABSTRACTION involves noticing similar characteristics of objects, which is important when making comparisons.

WHY IS IT IMPORTANT?

In science, sorting helps us learn. We group animals by their features, like birds having feathers, so we can understand each group better without knowing every animal in that group.

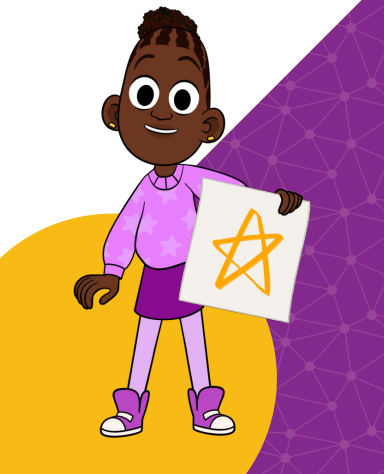
Same Thing, Different Way

2 PERSON GAME!

Draw a simple shape like a star the way you usually do.

Then tell someone how you did it and see if they can draw the same shape in their own way.

Think about how many different ways you can draw the same thing.



DECOMPOSITION & MODULARITY

DECOMPOSITION
is breaking something down into smaller parts.
MODULARITY
is combining those parts in a new way.

WHY IS IT IMPORTANT?

Set designers are modularity experts!

They reuse props in different ways for different shows. What might have been a bucket in one show can be combined with a pillow to make a chair in another!

Pattern Potato

Play hot potato with a twist.

Before passing the 'potato', make up a pattern like stomp, roll, clap.

WHEN YOU PASS THE POTATO, DO THE PATTERN.

If you forget the pattern or if the music stops and you have the potato, you're out.

CONTROL STRUCTURES

A **LOOP** is a type of **CONTROL STRUCTURE** that is a set of steps that repeat.

WHY IS IT IMPORTANT?

Is it pizza Friday yet?

Days of the week are a loop, and certain things happen on certain days, repeating all over again the next week!

Move-it Math

Let's make **COUNTING** to 50 (or beyond) exciting!

Instead of just saying the numbers, let's add a movement for each digit in the ones place.

For example, every time you say a number ending in 1, like 1, 21, or 31, that will be your signal to clap!

CONTROL STRUCTURES

CONTROL STRUCTURES are instructions that are carried out when signaled.

WHY IS IT IMPORTANT?

READY, SET, GO!

Track runners have to wait for a signal so they can all start running at the same time.

If they run before the signal, they may be disqualified.

Three Shape Wonders

Get creative and draw something using only one square, one triangle, and one circle.

How many things can you come up with using just these shapes, limited to one use each per drawing?

Maybe an ice cream cone, a cat, or a house?

Let's see what you can create!

ABSTRACTION

ABSTRACTION is when you think about something simply, focusing on the most important parts instead of worrying about all the details.

WHY IS IT IMPORTANT?

Architects use abstraction to share their ideas.

They focus on drawing the essential parts of a building, not the small details like paint color. This makes it easier to find later.

Sports Remix

Can you imagine playing ice hockey on your dinner table?

Think about a sport you enjoy – how could you change it so that it can be played indoors, using different materials, or even while seated at a table.

DECOMPOSITION & MODULARITY

DECOMPOSITION
is breaking something down into smaller parts.
MODULARITY
is combining those parts in a new way.

WHY IS IT IMPORTANT?

OOH LA LA!

Fashion designers often have to take materials, ideas, and inspiration from existing things to make something new and create a new style!

DIY Puzzle

Need a jigsaw puzzle but don't have one?

No problem! Grab a side of a cereal or cracker box, draw puzzle piece shapes on it, and cut them out.

Once you've got your puzzle pieces, think about how to sort them to put the puzzle back together.

WILL YOU ORGANIZE THEM BY COLOR? BY SHAPE?

ABSTRACTION

ABSTRACTION involves sorting objects into groups with similar characteristics.

WHY IS IT IMPORTANT?

Librarians use abstraction every day to sort books by genre or by author—without worrying about the details of every single story.

This makes it easier to organize and find books.

Sanitation Imagination

Let's pretend that the sanitation department called you and said they **needed your help**!

They said it took too long to pick up all the garbage.

WHAT WOULD YOU CHANGE TO MAKE IT GO FASTER?
(No magic!)

THE DESIGN PROCESS

The Imagine step in the **DESIGN PROCESS** is when designers brainstorm possible solutions to a problem.

WHY IS IT IMPORTANT?

Theme park designers brainstorm lots of different ideas for rides.

First, they imagine, and then they narrow down which ideas can actually be built and tested out.