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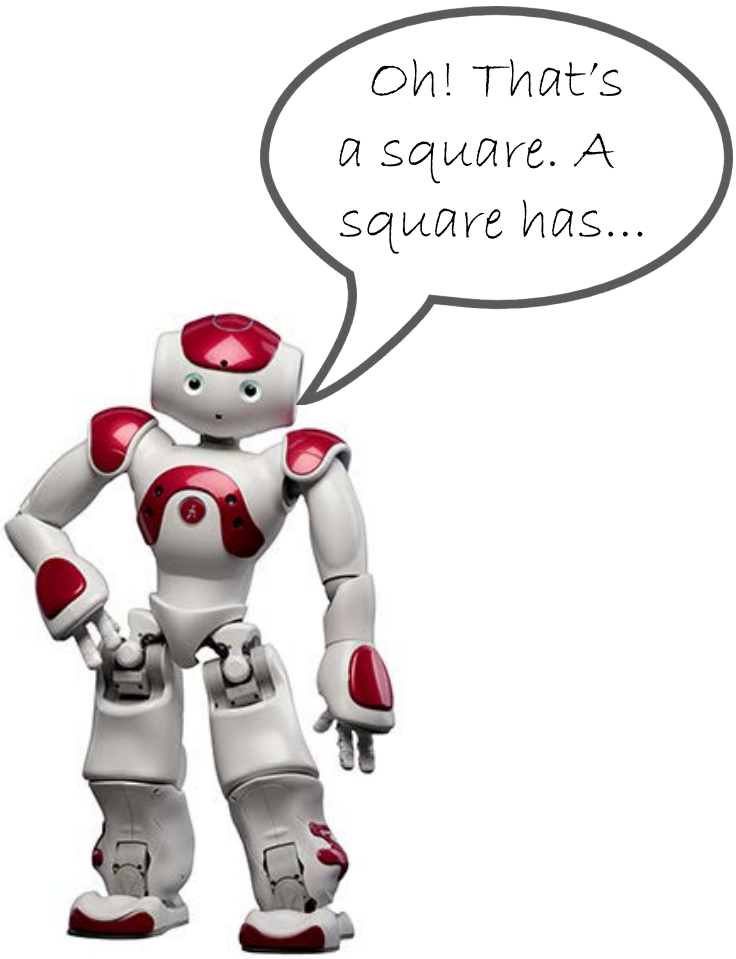
I Know That!

Problem of The Day:
How can you make NAO recognize an image?



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Play The Game!

Read the questions on this page.

Play with the robot while it is running the example program (Flash Cards). As you interact with the robot, answer the questions below. Use complete sentences.

What Does The Robot Say or Ask?

What Response Did You Give The Robot?

How Did The Robot React To Your Response?

What Responses Did You See Other Students Give?

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Explain The Game!

Write a description of the game in the space below.

Describe everything you saw Nao do.

Use complete sentences.

First The Robot...

Then...

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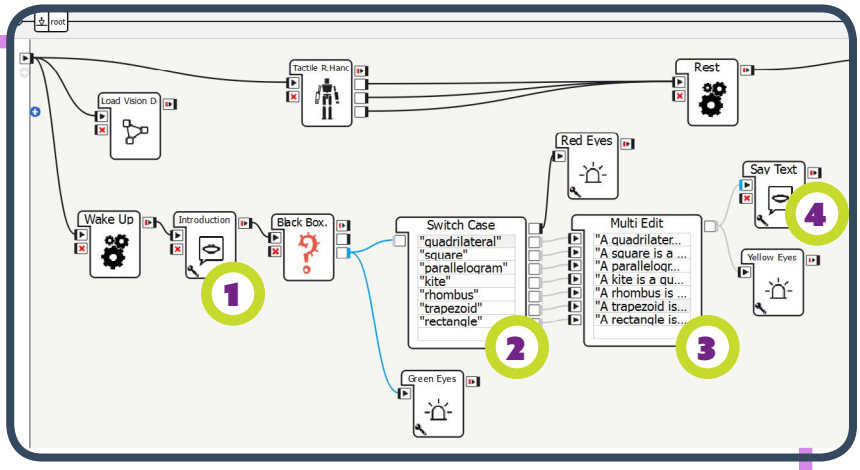
Read The Code!

Open the file **FlashCards.pml**. Read through the program and detail the function of each branch after the **Wake Up** box.



Box 1 Does...

Box 2 Does...

Box 3 Does...

Box 4 Does...

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What Do These Do?

Open the file **FlashCards.pml**. Read through the program.

Look at the program and identify the ? box.

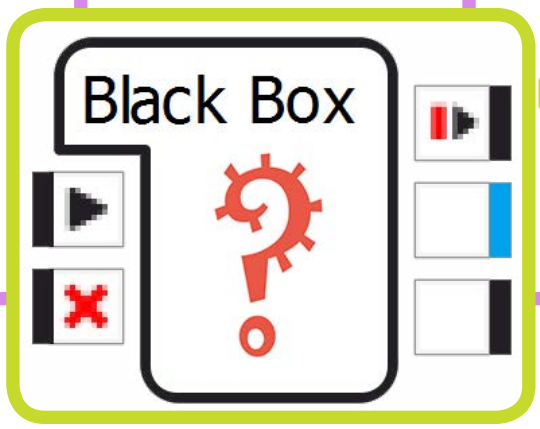
For each input/output port write its

1. **Name**
2. **Function (read tooltips by hovering mouse over port)**

Inputs:

Names:

Functions:



Outputs:

Names:

Functions:

Describe What The Box Does.

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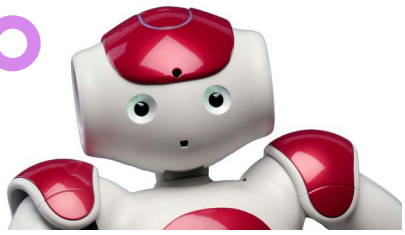
Brainstorm!

The **Black Box** in this program is a **Vision Recognition** box. In the example program, when NAO saw a quadrilateral card, she listed some facts of that shape.

In what other programs could a **Vision Recognition** box be used?

List as many ideas as you can think of! Write your ideas in the idea clouds below.

Your ideas can be words, sentences or drawings. Just make sure you can explain them!



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Build It Out!

Choose one of your ideas from **Brainstorm** and plan your program here.

The Main Outline Of My Program:

First my robot will say.... _____

_____

Then my robot will do... _____

_____

_____

_____

_____

I Will Use These Cards...	And The Robot Will Say...
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____

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Do, Reflect & Revise!

Build your program in **Choregraphe**. When you test it, record what happens here.

Reflect on what went right and what didn't go as planned.

Revise your program. Plan what you need to change to make it better.

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Today I Learned...

Answer the questions below.

What is the Vision Recognition box and what does it do?

In the end, what did your program do?

If you could change one more thing about your program, what would it be?

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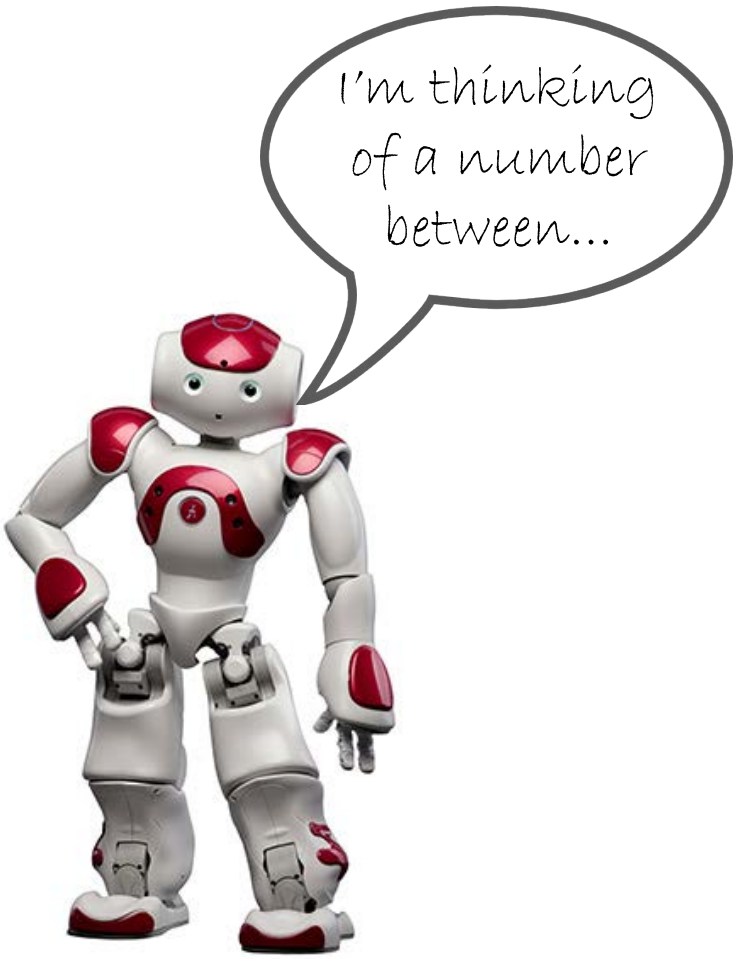
Guess What!

Problem of The Day:
How can you make NAO play the number guessing game with me?



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Play The Game!

Read the questions on this page.

Play with the robot while it is running the example program (Number Game). As you interact with the robot, answer the questions below. Use complete sentences.

What Does The Robot Say or Ask?

What Response Did You Give The Robot?

How Did The Robot React To Your Response?

What Responses Did You See Other Students Give?

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Explain The Game!

Write a description of the game in the space below.

Describe everything you saw Nao do.

Use complete sentences.

First The Robot...

Then...

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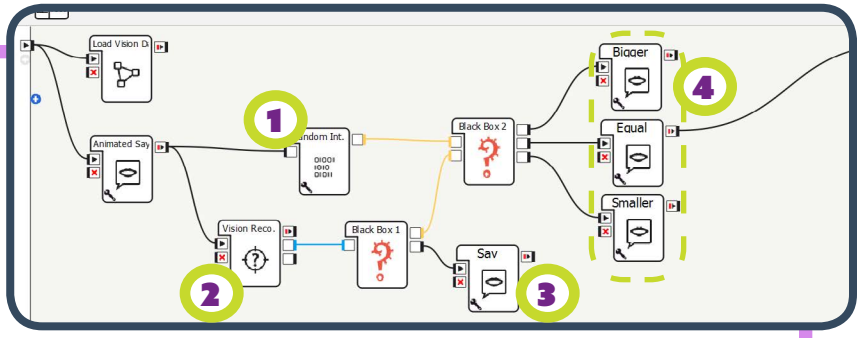
Read The Code!

Open the file **NumberGame.pml**. Read through the program and detail the function of each branch after the **Wake Up** and **Load Vision** boxes.



Box 1 Does...

_____

_____

_____

Box 2 Does...

_____

_____

_____

The Animated Say At 3 Says...

_____

_____

The Three Animated Say Boxes At 4 Say...

1. _____
2. _____
3. _____

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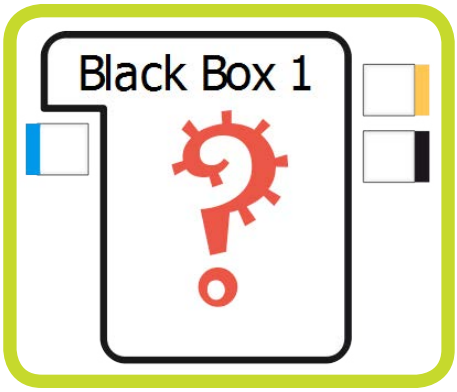
What Do These Do?

Look at the NumberGame.pml program and identify the ? boxes. For each input/output port write its Name and Function.

Inputs:

Names:

Functions:



Outputs:

Names:

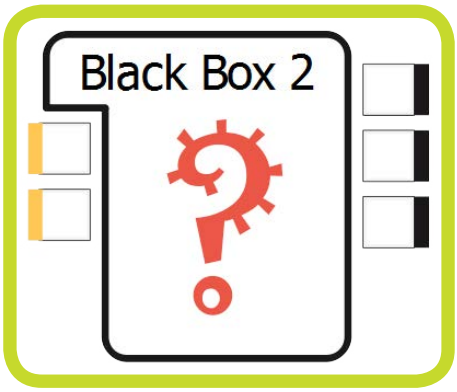
Functions:

Describe What The Box Does.

Inputs:

Names:

Functions:



Outputs:

Names:

Functions:

Describe What The Box Does.

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Brainstorm!

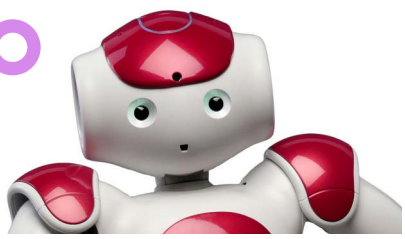
The **Black Box 1** in this program is a **Text to Number** box. It takes the text from the vision recognition box (the name of the card) and converts it into a number.

The **Black Box 2** is a **Relation** box. It determines if the top input is greater than, equal to or less than the bottom input.

In what other programs could these boxes be used?

List as many ideas as you can think of! Write your ideas in the idea clouds below.

Your ideas can be words, sentences or drawings. Just make sure you can explain them!



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Build It Out!

Choose one of your ideas from **Brainstorm** and plan your program here.

The Main Idea For Your Game:

The rules are..._____

_____

The robot will do... _____

_____

Then the human will..._____

_____

I Will Use These Cards...

- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____

I will use These Boxes

1. _____

because... _____

_____

2. _____

because... _____

_____

3. _____

because... _____

_____

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Do, Reflect & Revise!

Build your program in **Choregraphe**. When you test it, record what happens here.

Reflect on what went right and what didn't go as planned.

Revise your program. Plan what you need to change to make it better.

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Today I Learned...

Answer the questions below.

What is the Relation box and what does it do?

In the end, what did your program do?

If you could change one more thing about your program, what would it be?

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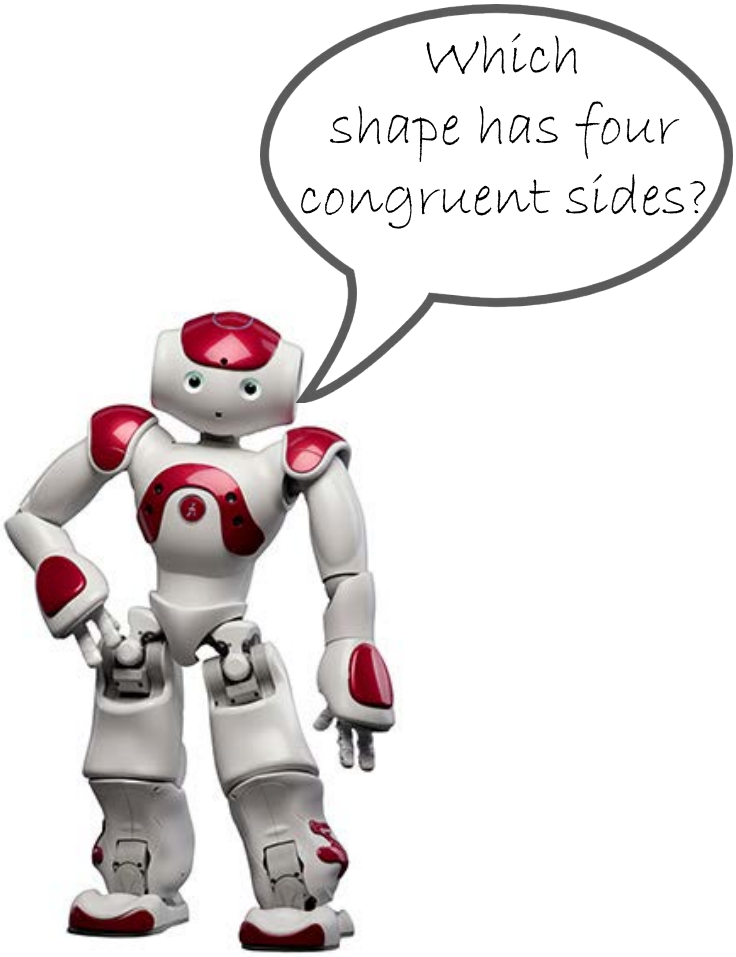
Let Me Quiz You!

Problem of The Day:
How can you make NAO quiz you about shapes?



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Play The Game!

Read the questions on this page.

Play with the robot while it is running the example program (Qizzer). As you interact with the robot, answer the questions below. Use complete sentences.

What Does The Robot Say or Ask?

What Response Did You Give The Robot?

How Did The Robot React To Your Response?

What Responses Did You See Other Students Give?

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Explain The Game!

Write a description of the game in the space below.

Describe everything you saw Nao do.

Use complete sentences.

First The Robot...

Then...

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Read The Code!

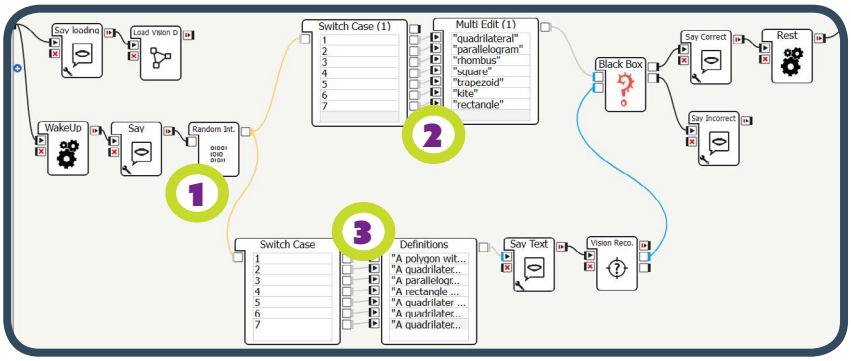
Open the file **Quizzer.pml**. Read through the program and...

- ▶ List all possible values of the Random Int.
- ▶ List the entries in the Labels and Definitions text boxes in the space below.
- ▶ Explain why the program branches after the wake up box.

Random Int 1

Min Value:

Max Value:



Labels 2

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

Definitions 3

1. A polygon with four sides
2. A quadrilateral with both pairs of opposite sides parallel
3. A parallelogram with all four sides congruent
4. A rectangle with all four sides congruent
5. A quadrilateral with exactly one pair of opposite sides parallel
6. A quadrilateral with two pairs of adjacent sides congruent
7. A quadrilateral with all four angles right angles

If the random number selected is 5, what happens in the rest of the program?

_____

_____

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What Do These Do?

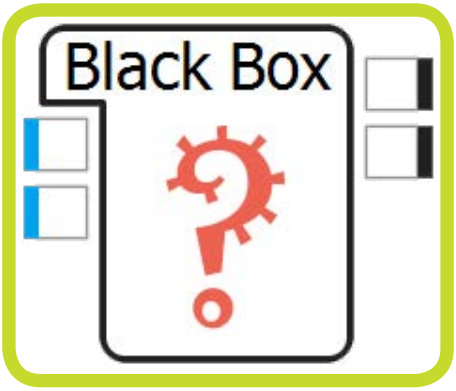
Open the file **Quizzer.pml**. Read through the program.

Look at the program and identify the ? boxes. For each input/output port write its **Name** and **Function**.

Inputs:

Names:

Functions:



Outputs:

Names:

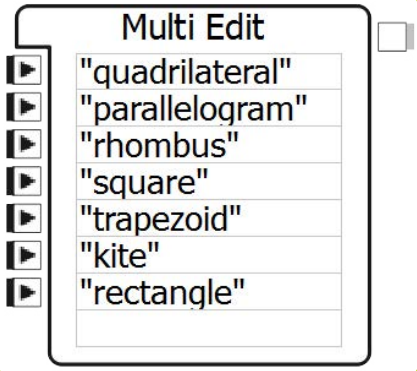
Functions:

Describe What The Box Does.

Inputs:

Names:

Functions:



Outputs:

Names:

Functions:

Describe What The Box Does.

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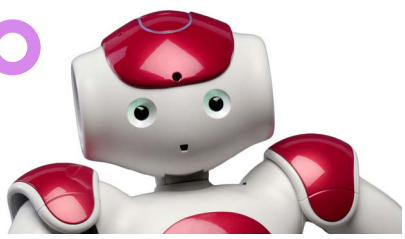
Brainstorm!

The **Black Box** is a **Text Equality** box. It determines if two pieces of text are the same or different.

In what other programs could these boxes be used?

List as many ideas as you can think of! Write your ideas in the idea clouds below.

Your ideas can be words, sentences or drawings. Just make sure you can explain them!



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Build It Out!

Choose one of your ideas from **Brainstorm** and plan your program here.

The Main Outline Of My Program:

First my robot will say.... _____

_____

Then my robot will do... _____

_____

_____

_____

_____

I Will Use These Cards...

And The Robot Will Say...

▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____
▶ _____	➔ _____

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Do, Reflect & Revise!

Build your program in **Choregraphe**. When you test it, record what happens here.

Reflect on what went right and what didn't go as planned.

Revise your program. Plan what you need to change to make it better.

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Today I Learned...

Answer the questions below.

What is the Item In List box and what does it do?

In the end, what did your program do?

If you could change one more thing about your program, what would it be?

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Rock, Paper, Scissors!

Problem of The Day:
How can you make NAO play rock, paper, scissors?

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Play The Game!

Read the questions on this page.

Play with the robot while it is running the example program (Rock, Paper, Scissors). As you interact with the robot, answer the questions below. Use complete sentences.

What Does The Robot Say or Ask?

What Response Did You Give The Robot?

How Did The Robot React To Your Response?

What Responses Did You See Other Students Give?

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Explain The Game!

Write a description of the game in the space below.

Describe everything you saw Nao do.

Use complete sentences.

First The Robot...

Then...

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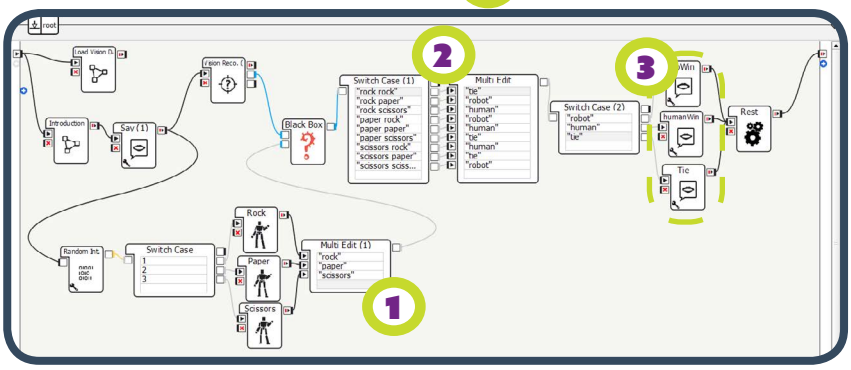
Read The Code!

Open the file **RockPaperScissors.pml**. Read through the program and...

- Explain what happens in the outlined area marked with 1
- Write out all the rules in the text box marked with 2
- Explain what happens in the outlined area marked with 3

What Options Are In the MultiEdit At 1



Write Out Each Rule From The Text Boxes Marked With 2

- _____ = _____
- _____ = _____
- _____ = _____
- _____ = _____
- _____ = _____
- _____ = _____
- _____ = _____
- _____ = _____
- _____ = _____

What Happens In 3

_____

_____

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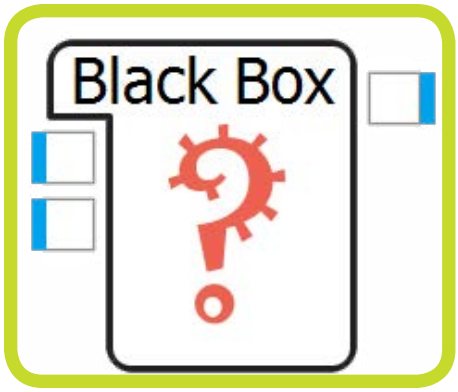
What Do These Do?

Look at the **RockPaperScissors.pml** program and identify the ? boxes. For each input/output port write its **Name** and **Function**.

Inputs:

Names:



Outputs:

Names:

Functions:

Functions:

Describe What The Box Does.

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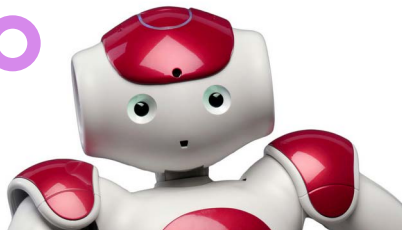
Brainstorm!

The **Black Box** in this program is a **Text Gluing** box. In the example program, the Text Gluing box takes the robot's move and the human's move and glues them together.

In what other programs could a **Text Gluing** box be used?

List as many ideas as you can think of! Write your ideas in the idea clouds below.

Your ideas can be words, sentences or drawings. Just make sure you can explain them!



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Build It Out!

Choose one of your ideas from **Brainstorm** and plan your program here.

The Main Outline Of My Program:

First my robot will say.... _____

_____

Then my robot will do... _____

_____

_____

_____

_____

I Will Use These Cards...

- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____

And The Rules Will Be...

- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____
- ▶ _____

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Do, Reflect & Revise!

Build your program in **Choregraphe**. When you test it, record what happens here.

Reflect on what went right and what didn't go as planned.

Revise your program. Plan what you need to change to make it better.

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Today I Learned...

Answer the questions below.

What is the Decider box and what does it do?

In the end, what did your program do?

If you could change one more thing about your program, what would it be?

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Let's Play!

Problem of The Day:
How can you make NAO act as a game console?

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Play The Game!

Read the questions on this page.

Play with the robot while it is running the example program (Menu). As you interact with the robot, answer the questions below. Use complete sentences.

What Does The Robot Say or Ask?

What Response Did You Give The Robot?

How Did The Robot React To Your Response?

What Responses Did You See Other Students Give?

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Explain The Game!

Write a description of the game in the space below.

Describe everything you saw Nao do.

Use complete sentences.

First The Robot...

Then...

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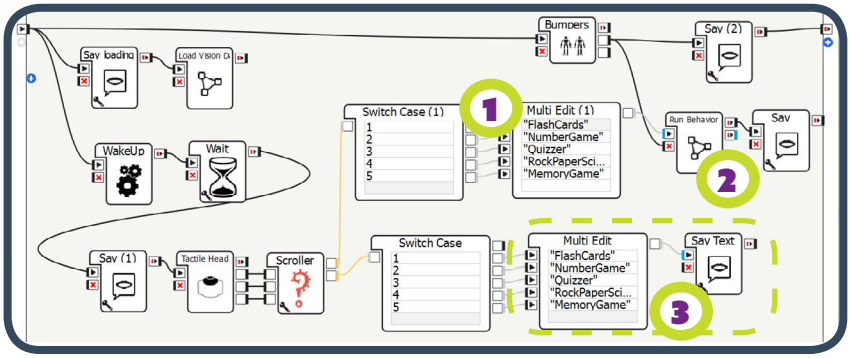
Read The Code!

Open the file **Menu.pml**. Read through the program and...

- Explain what happens in the area marked with 1
- Write out what happens in the Run Behavior box at 2
- Explain what happens in the outlined area marked with 3

What Happens In 1



What Does The Run Behavior Box Do At 2

What Do The Boxes In Area 3 Control?

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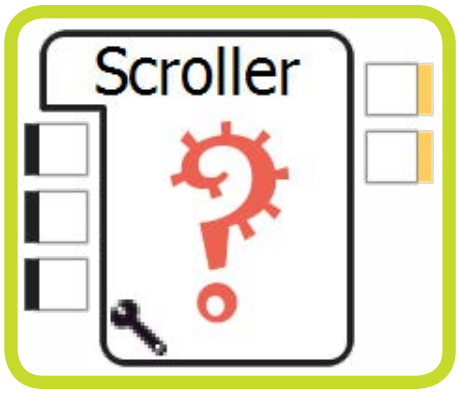
What Do These Do?

Look at the **Menu.pml** program and identify the box. For each input/output port write its **Name** and **Function**.

Inputs:

Names:



Outputs:

Names:

Functions:

Functions:

Describe What The Box Does.

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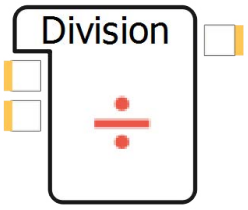
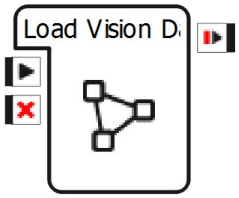
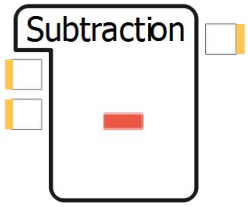
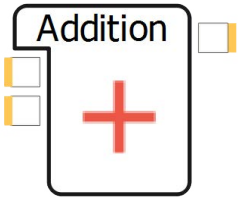
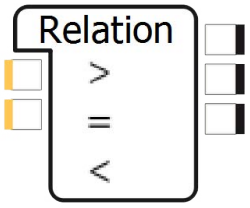
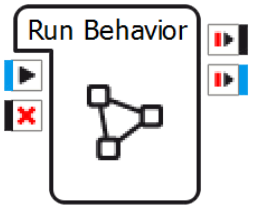
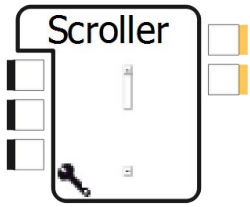
Module 3 New Boxes

Box	Name	Function
	Divide	Divides the top number by the bottom number
	Load Vision Database	Loads the vision recognition database currently on the robot.
	Minus	Subtracts the bottom number from the top number
	Plus	Adds both inputs.
	Relation	takes in two numbers and compares them. The top output fires if the top number is larger than the bottom, etc.
	Run Behavior	Looks for a local file with the same name as the text input. If it finds one, it runs the behavior.
	Scroller	Scrolls through numbers. Top input increases the number, bottom input decreases the number. Middle input selects the number.

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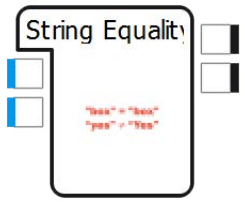
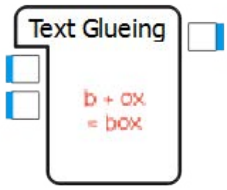
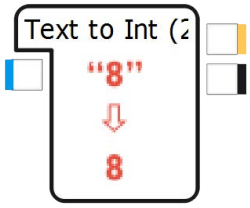
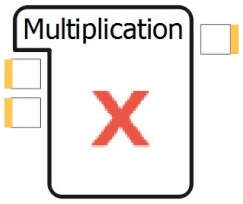
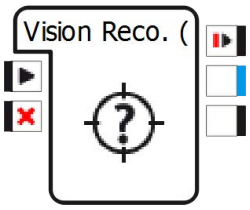
Module 3 New Boxes

Box	Name	Function
	Text Equality	Checks to see if two string-type variables are equal.
	Text Gluing	Takes two bits of text and glues them together. Top input first.
	Text to Int	Converts a string type variable to an integer. Top output fires if conversion can happen, bottom output fires if cannot convert.
	Times	Multiplies the two numbers.
	Vision Reco	Recognizes an image and outputs the name of that image from the blue output port.

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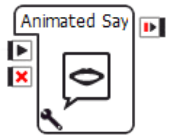
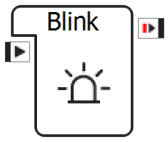
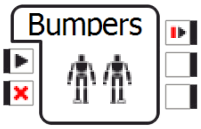
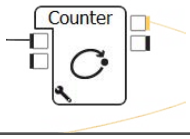
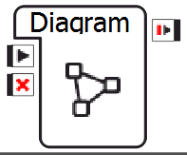
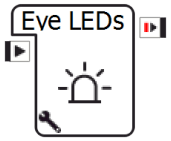
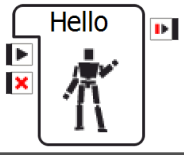
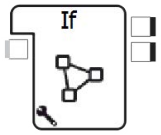
Old Boxes

Box	Name	Function
	Animated Say	Makes the NAO speak while he moves his arms and head
	Blink	Makes the robot blink once
	Bumpers	Waits for one, or both, of the bumpers to be pressed
	Color Edit	Sets a color and codes it as a number
	Counter	Makes NAO repeat an action a certain number of times
	Diagram	A custom box to group other boxes
	Eye LEDs	Sets the LED color of both eyes
	Hello	Makes NAO wave hello (He does not say hello)
	If	Checks to see if the input is equal to a preset value

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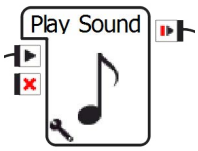
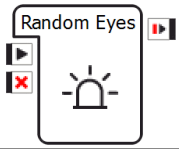
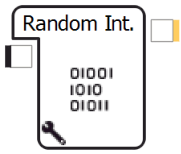
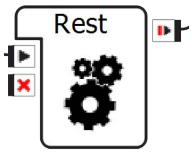
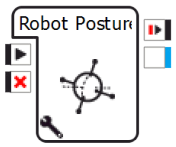
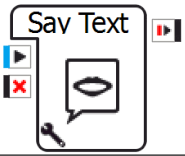
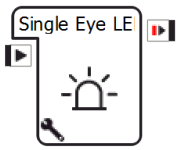
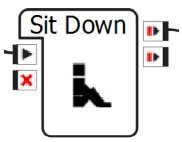
Old Boxes

Box	Name	Function
	Play Sound	Plays a sound file through NAO's speakers
	Random Eyes	Changes the color of the eyes randomly
	Random Int.	Chooses a random number from a range of numbers
	Rest	Turns the motors off after putting him in a safe position
	Robot Posture	Outputs the name of the robot's current posture
	Say Text	NAO says the text given to it through the blue input port
	Single Eye LED	Sets the color of a single eye
	Sit Down	Makes the NAO sit down smoothly from any position
	Speech Reco.	Recognizes the word a human says from a particular list of words

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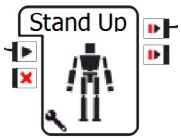
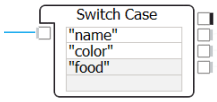
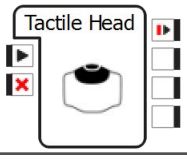
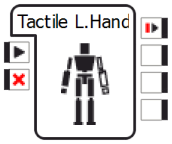
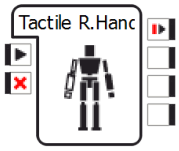
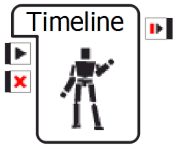
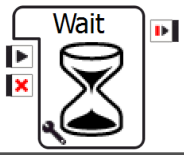
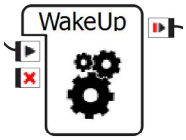
Old Boxes

Box	Name	Function
	Stand Up	Makes the NAO stand up smoothly from any position
	Switch Case	Changes tasks based on an input
	Tactile Head	Detects a touch on the head
	Tactile L.Hand	Detects a touch on the left hand
	Tactile R.Hand	Detects a touch on the right hand
	Timeline	Makes NAO do a custom motion
	Wait	Waits a certain amount of time
	Wait For Signals	Waits for both input ports to be signaled
	Wake Up	Turns all of NAO's motors on

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QUADRILATERAL
PARALLELOGRAM
RECTANGLE
RHOMBUS
SQUARE

QUADRILATERAL
PARALLELOGRAM

QUADRILATERAL
PARALLELOGRAM
RHOMBUS

QUADRILATERAL
KITE

QUADRILATERALS

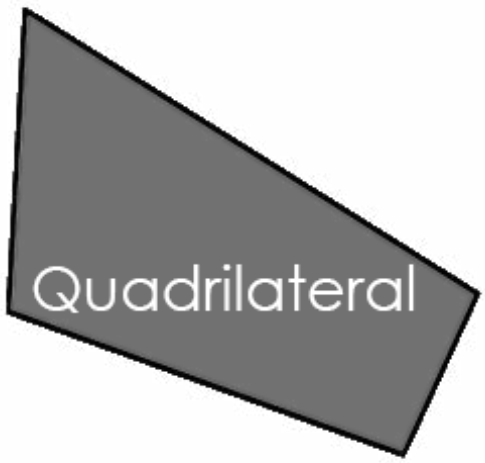
QUADRILATERALS

QUADRILATERALS

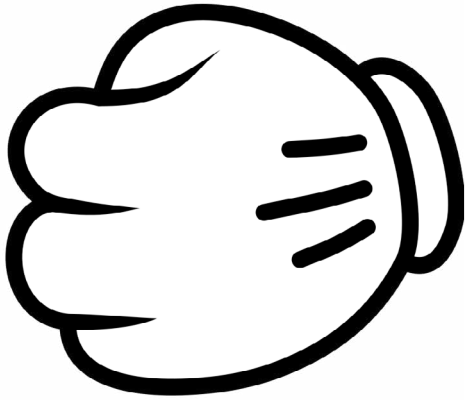
QUADRILATERALS

QUADRILATERAL
TRAPEZOID

QUADRILATERAL
PARALLELOGRAM
RECTANGLE



QUADRILATERAL



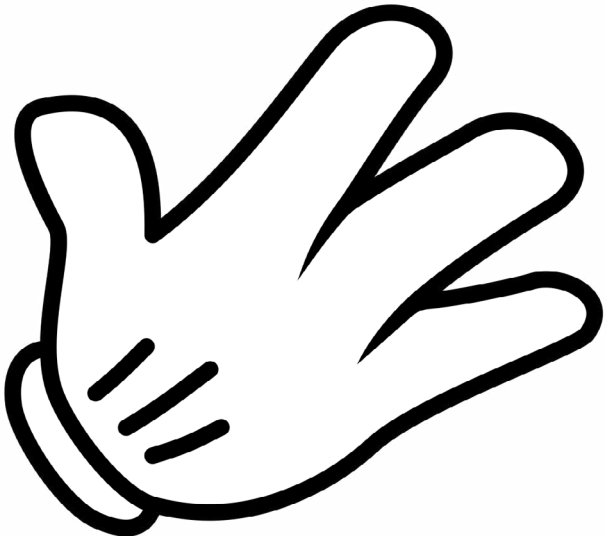
ROCK

QUADRILATERALS

QUADRILATERALS

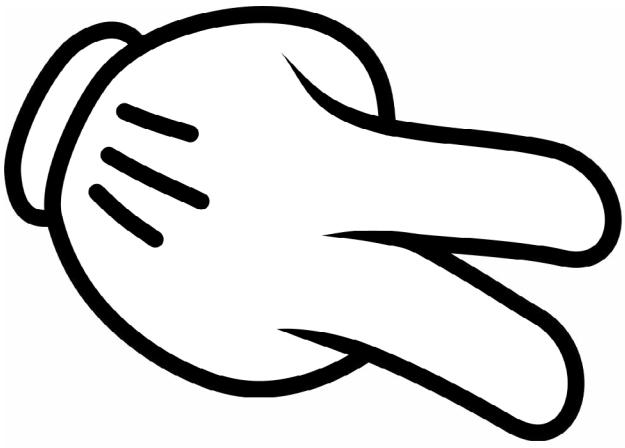
ROCK, PAPER, SCISSORS

QUADRILATERALS

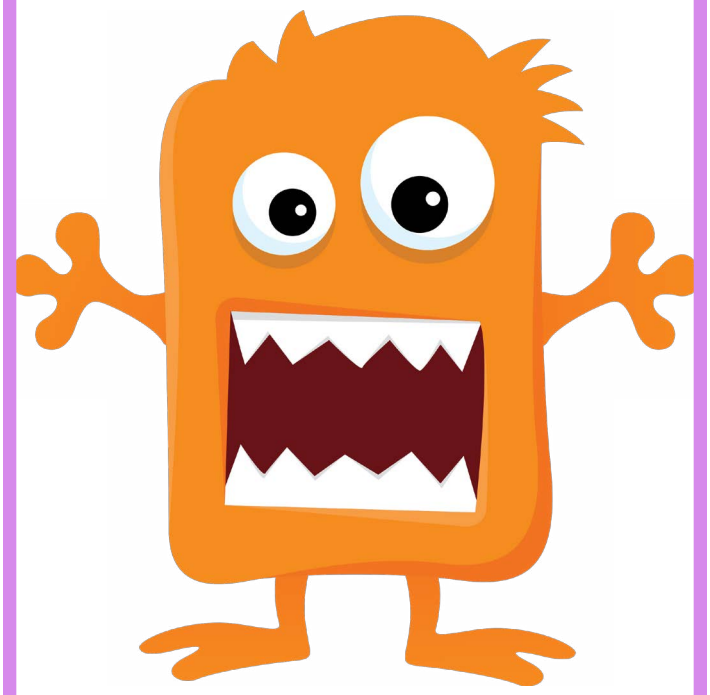


PAPER

BLUE MONSTER



SCISSORS



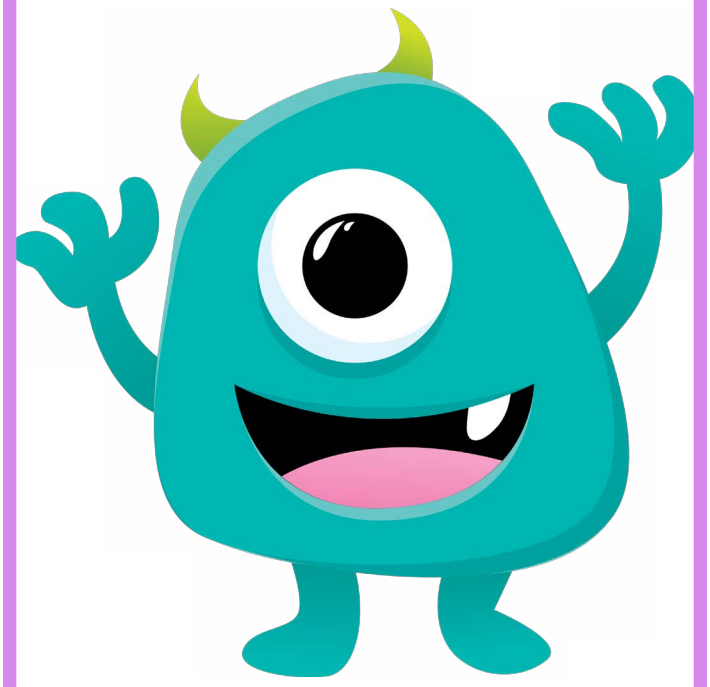
ORANGE MONSTER

MONSTERS

ROCK, PAPER, SCISSORS

MONSTERS

ROCK, PAPER, SCISSORS



TEAL MONSTER

PURPLE MONSTER

GREEN MONSTER

RED MONSTER

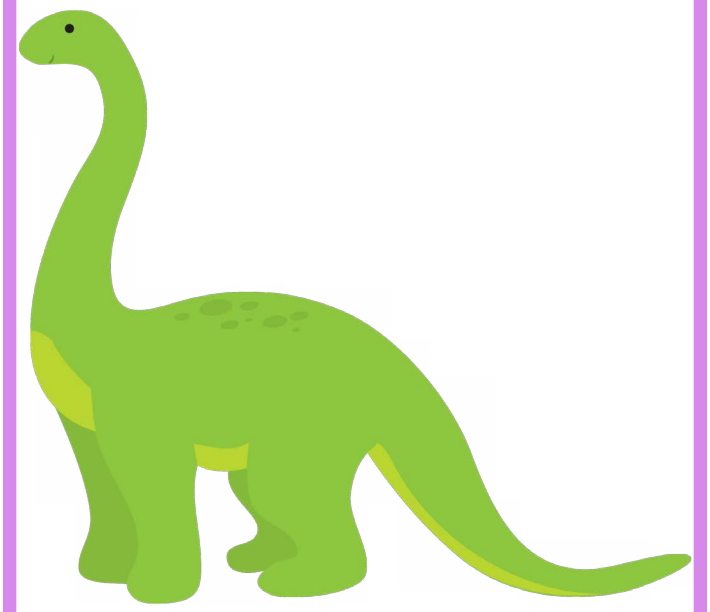
MONSTERS

MONSTERS

MONSTERS

MONSTERS

T-REX



PLESIOSAURUS

PTERODACTYL

PALM TREE

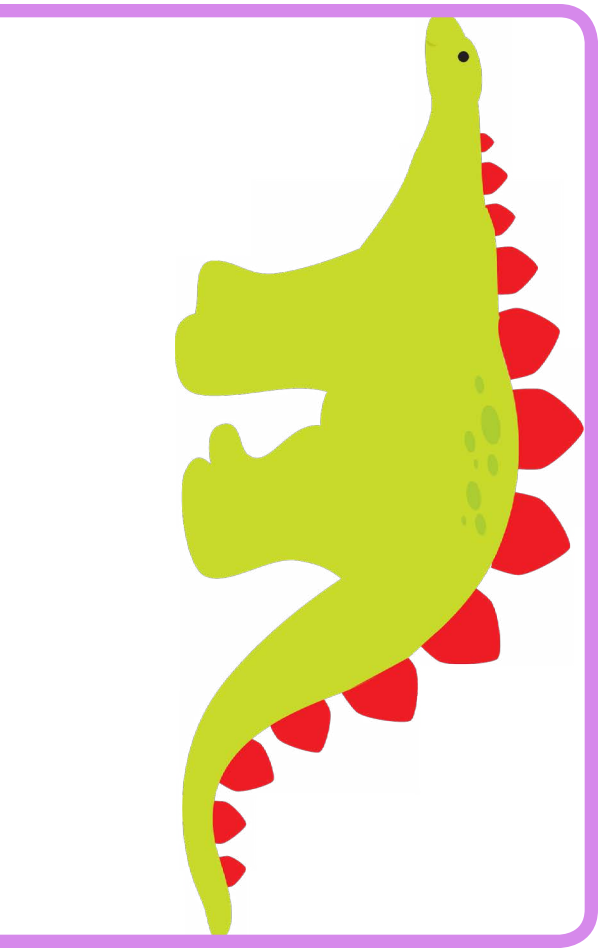
DINOSAURS

DINOSAURS

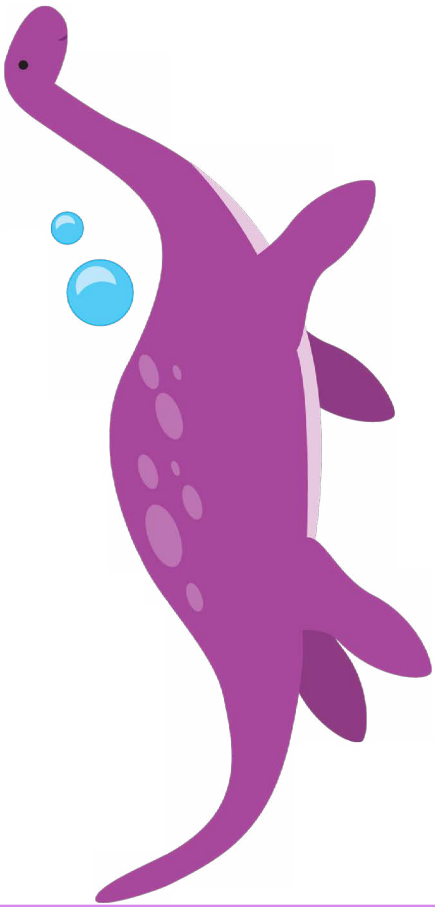
DINOSAURS

DINOSAURS

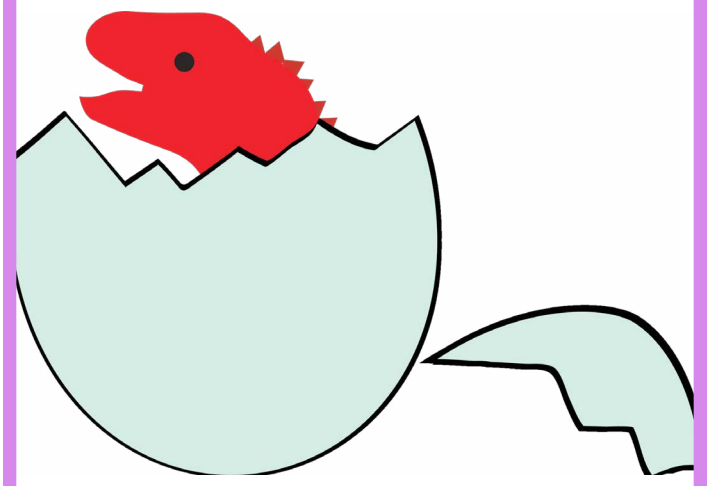
TRICERATOPS



STEGASAURUS



PLESIOSAURUS



T-REX EGG

DINOSAURS

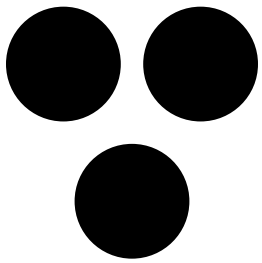
DINOSAURS

DINOSAURS

DINOSAURS

1

2



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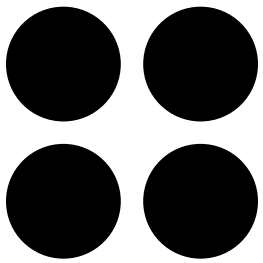


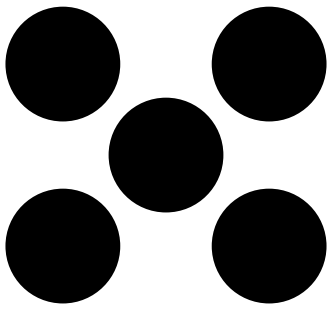
4

NUMBERS

NUMBERS

NUMBERS

NUMBERS



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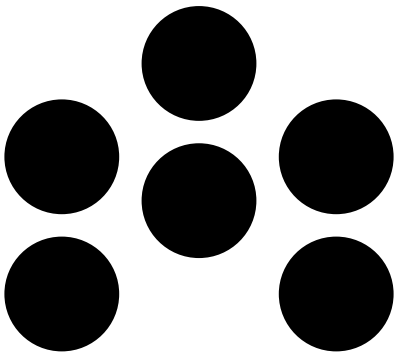
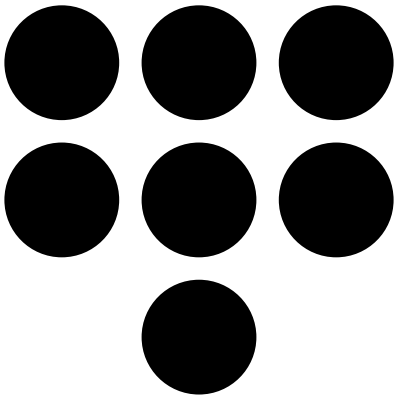
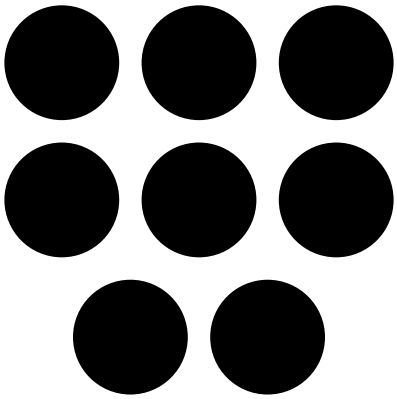


6



7



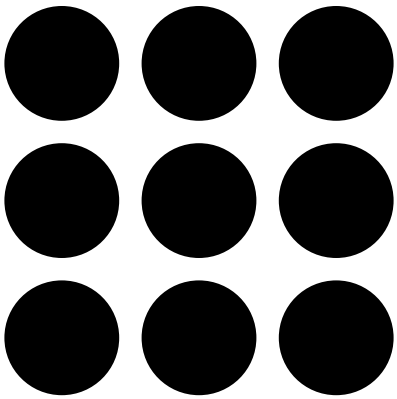
8

NUMBERS

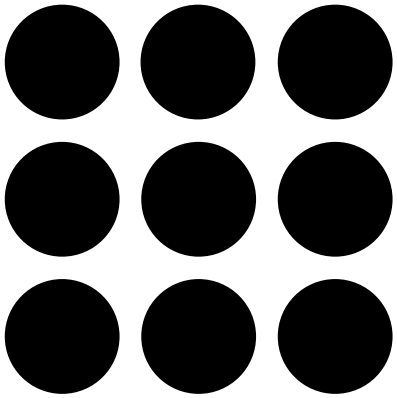
NUMBERS

NUMBERS

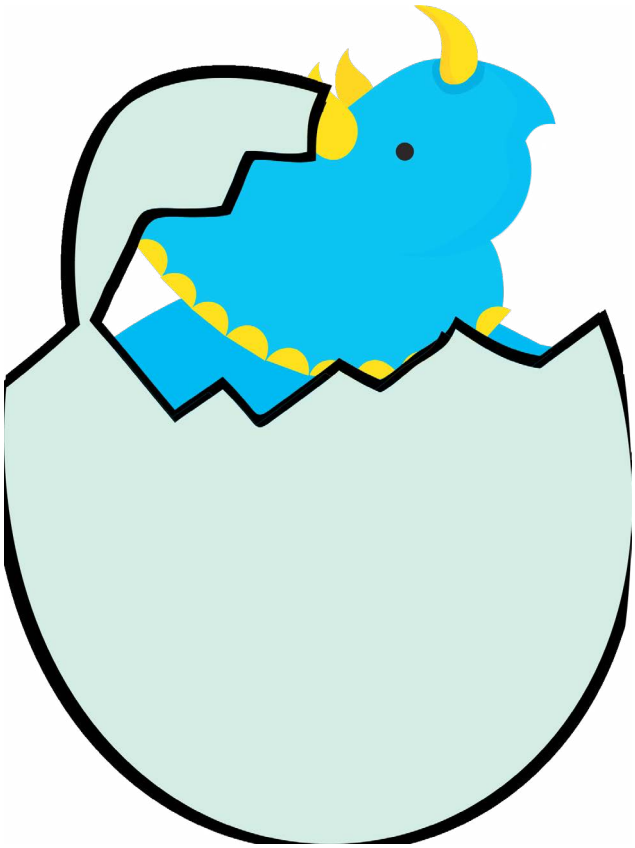
NUMBERS



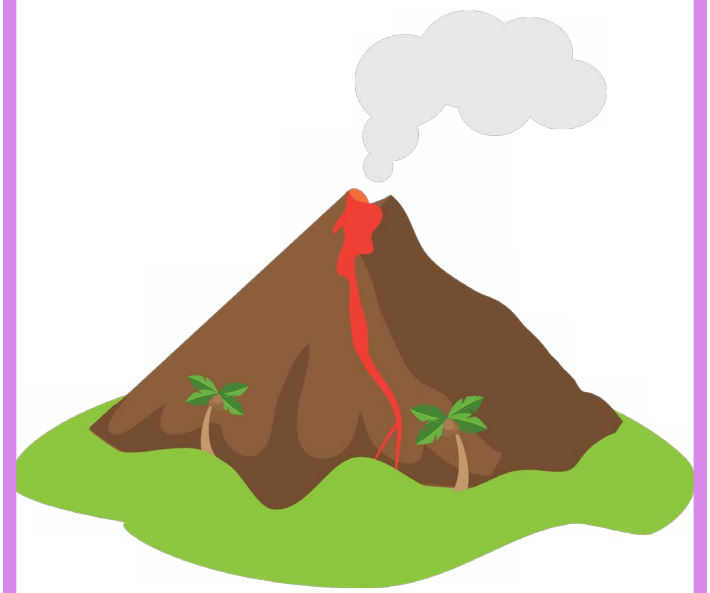
9



10



TRICERATOPS EGG



VOLCANO

NUMBERS

NUMBERS

DINOSAURS

DINOSAURS