Teacher's guide

Level: 1



SudoHopper3D Play, ponder and learn

Few things you need to know before you start solving all the assignments:

1) Learn the interface of Grasshopper [Play Video]





2) Introduction to parameters [Play Video]



3) Learn what a list is, short introduction [Play Video]



SudoHopper3D 3 6 9 5 12 5 5 15 15 18	27 ^{L1} 24 21 18 15 12	SudeHopper2D	Reverse: Reverse the order of a list. The new index of each element will be <i>N-i</i> where <i>N</i> is the highest index in the list and <i>i</i> is the old index of the element.
21 24 27	9 6 3 inofabstudio' Play Video: Create both lists of numbers.		
Orange of the second se	Series: Create a series of numbers. The numbers are spaced according to the {Step} value. If you need to distribute numbers inside a fixed numeric range, consider using the [Range] component instead.		
RutingerD U D D D D D D D D D D D D D D D D D D D	Range: Create a range of numbers. The numbers are spaced equally inside a numeric domain. Use this component if you need to create numbers between extremes. If you need control over the interval between successive numbers, you should be using the [Series] component.		
Statistical Statis	Domain: Create a numeric domain from two numeric extremes.	Computeries	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





SudoHopper3D -10 -9 -8 -7 -7 -6	-20 ^{L:1} -15 -10 -5 0	Sedestroper 2D	Reverse: Reverse the order of a list. The new index of each element will be <i>N-i</i> where <i>N</i> is the highest index in the list and <i>i</i> is the old index of the element.
-5 -4 -3 -2	5 10 15 20 hinoFabStudio [*] Play Video: Create both lists of numbers.	Televiseer PD	Series: Create a series of numbers. The numbers are spaced according to the {Step} value. If you need to distribute numbers inside a fixed numeric range, consider using the [Range] component instead.
Change and a second sec	Series: Create a series of numbers. The numbers are spaced according to the {Step} value. If you need to distribute numbers inside a fixed numeric range, consider using the [Range] component instead.		
Kutheyeri K K K K K K K K K K K K K K K K K K K	Range: Create a range of numbers. The numbers are spaced equally inside a numeric domain. Use component if you need to create numbers betwee extremes. If you need control over the interval between successive numbers, you should be using the [Series] component.	this n J	
Construction Const	Domain: Create a numeric domain from two numeric extremes.	Of the second se	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.



Number Slider 🔶 -1	Series Start Step I Series Count	{0;0} 0 -10 1 -11 2 -12 3 -13 4 -14 5 -15 6 -16	\ {0;0}
Number Slider Number Slider Number Slider	Series Start Step 1 Series Count	7 -17 8 -18	0 -20 1 -15 2 -10 3 -5 4 0 5 5 6 10 7 15 8 20

SudoHopper3D	L: 1	3	Euclotoper 2D	SDL: Create a line segment defined by start point, tangent and length.
Scale ar	linoFabStudio	<i>Play Video: Draw and scale few lines in the X axis</i>	teleforger 20	Line: Create a line between two points.
Image: Second	Series: Create are spaced acco need to distribu range, consider instead.	a series of numbers. The numbers ording to the {Step} value. If you ite numbers inside a fixed numeric using the [Range] component		
$\mathbf{Extensions} = \mathbf{E} \mathbf{E} \mathbf{E} \mathbf{E} \mathbf{E} \mathbf{E} \mathbf{E} \mathbf{E}$	Construct Point Coordinates.	nt: Construct a point from {xyz}		
	Unit X: Unit ve	ctor parallel to the world {x} axis.	Central Andrews	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.



SudeHopper3D subeHopper3D subeHopper3D subeHopper3D		Suboroper 2D	Rectangle: Create a rectangle on a plane
R	Play Video: Draw an square and scale it few times out	Substance of D Image: Control of the	Polygon: Create a polygon with optional round edges.
Image: State of the state o	Series: Create a series of numbers. The numbers are spaced according to the {Step} value. If you need to distribute numbers inside a fixed numeric range, consider using the [Range] component instead.	Futurepoints	Area: Solve area properties for breps, meshes and planar closed curves.
Literatory N	Range: Create a range of numbers. The numbers are spaced equally inside a numeric domain. Use this component if you need to create numbers between extremes. If you need control over the interval between successive numbers, you should be using the [Series] component.	The second secon	Scale: Scale an object uniformly in all directions.
		Cronswitching	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.



SudoHopper3D le gi w a li b li c li c li c li c li c li c li c li c		5	Rectangle 2Pt	Rectangle 2Pt: Create a rectangle from a base plane and two points
Daw a rectan	hino: abStudio	<i>Play Video: Draw a rectangle with a diagonal line</i>	Substrate and State and St	Rectangle: Create a rectangle on a plane
Notering with the second secon	Deconstruct: constituent par	Deconstruct a brep into its ts.		
Noteringenerald U U U U U U U U U U U U U	PolyLine: Cre number of poi	eate a polyline connecting a ints.		
Wedenbergerer/D	List Item: Ret	rieve a specific item from a list.	Creationality	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.

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SudoHopper2D		6	Subifuper 3D	Scale NU: Scale an object with non-uniform factors.
Scale up or	RhinoFabStudio	<i>Play Video: Copy and array few rectangles</i>	Vadringeren 10 U U U U U U U U U U U U U	Move: Translate (move) an object along a vector.
Image: second	Rectangle: Cr	eate a rectangle on a plane	understanding of the second se	Unit Y: Unit vector parallel to the world $\{y\}$ axis.
Subtrive AD	Series: Create are spaced acc need to distrib range, conside instead.	e a series of numbers. The numbers cording to the {Step} value. If you ute numbers inside a fixed numeric r using the [Range] component		
			eprice - units Use it as a first of the fir	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.



uly the closed curves			
Select o	RhinoFalsStudio" Play Video: Select only closed curves		
Badenteper 20 ↓ 1 ↓ 1 ↓ 1 ↓ 1 ↓ 1 ↓ 1 ↓ 1 ↓ 1	Closed: Test if a curve is closed or periodic.		
Statestoper (1)	Dispatch: Dispatch the items in a list into two target lists. List dispatching is very similar to the [Cull Pattern] component, with the exception that both lists are provided as outputs.		
		Creativeters	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





dn of Aquity se sax		Subologour3D	Move: Translate (move) an object along a vector.
Rotate b	Play Video: Rotate and move a solid in the Z axis	Linderson (Linderson)	List Length: Measure the length of a list. Elements in a list are identified by their index. The first element is stored at index zero, the second element is stored at index one and so on and so forth. The highest possible index in a list equals the length of the list minus one.
Exercise of the second	Series: Create a series of numbers. The numbers are spaced according to the {Step} value. If you need to distribute numbers inside a fixed numeric range, consider using the [Range] component instead.		Unit Z: Unit vector parallel to the world $\{z\}$ axis.
Image: constraint of the second se	Rotate: Rotate an object in a plane.		
Extension of the second	Rotate axis: Rotate an object around an axis.	Ceruptivitation Cerupt	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.

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SudoHopper3D 0 45 \$1 90 90 93 135 180 40 225	0.0 L: 1 0.7854 0.5 * Pi 2.35619 Pi 3.92699	9		
9 270 315 360	1.5 * Pi 5.49779 2.0 * Pi hinoFabStudio*	Play Video: Create these wo list of numbers		
Hadenegap (1)	Range: Create a are spaced equal this component if between extreme interval between be using the [Ser	range of numbers. The numbers ly inside a numeric domain. Use you need to create numbers s. If you need control over the successive numbers, you should ies] component.		
National State	Construct Doma from two numerio	ain: Create a numeric domain c extremes.		
	Pi: Returns a fact	tor of Pi.	Comparison Compar	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.















	Curve	Populate 2D Region
Number Slider Number Slider	▲ 42 42 10.0 ○	Count Population Seed Population Points
		Construct Point Line X Y V Pt Z Pt End Point Line Line Line Line Line Line







SudeHopper3D		13	Sudotopper3D	Polar: Create a polar array of geometry.
Polar array 6 So	hinoFabStudio"	<i>Play Video: Polar array a square and scale each one of them</i>	Addressen	Scale: Scale an object uniformly in all directions.
Substranges 20	Rotate: Rotate	an object in a plane.		
Statemport	Rotate: Rotate	e an object in a plane.		
	Area: Solve ar planar closed c	ea properties for breps, meshes and urves.	Centerholds	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





SudoHopper3D		14	Sudofopper3D	Rotate Plane: Perform plane rotation around plane z-axis
Rotate and mo	hinol'abStudio'	<i>Play Video: Move, copy and rotate along the X or Y axis</i>		Negative: Compute the negative of a value.
Nutrice 10	Series: Create are spaced acco need to distribu range, consider instead.	a series of numbers. The numbers ording to the {Step} value. If you ite numbers inside a fixed numeric vusing the [Range] component	Polar Array	Polar: Create a polar array of geometry.
Validitização V	Construct Poin coordinates.	nt: Construct a point from {xyz}		Move: Translate (move) an object along a vector.
Subiringue () U U U U Dame = iterator	XY Plane: Wor	ld XY plane.	CENTRAL CONTRAL CONTRA	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





From the first list, create the second list 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.0 ^{1:1} 0.062 0.125 0.187 0.25 0.312 0.375 0.437 0.5	15 Play Video: Remap	SudoHoper3D	Remap: Remap numbers into a new numeric domain
R		numbers		
Hubble Constraints of the second seco	Series: Create are spaced acco need to distribu range, consider instead.	a series of numbers. The numbers ording to the {Step} value. If you te numbers inside a fixed numeric using the [Range] component		
Subarrage 10	Bounds: Create a numeric domain which encompasses a list of numbers.			
Substrange ID	Domain: Creat numeric extrem	e a numeric domain from two es.	endowerse	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





sudoHopper3D		16	Subortopper 2D	Divide Domain: Divides a two dimensional domain into equal segments
	NinorabStudio"	<i>Play Video: Rectangular array of circles</i>	Noterioper 20	Isotrim: Extract an isoparametric subset of a surface
Image: state	Series: Create are spaced acco need to distribu range, consider instead.	a series of numbers. The numbers ording to the {Step} value. If you te numbers inside a fixed numeric using the [Range] component	Statesquerate (G) (G) (G) (G) (G) (G) (G) (G)	Area: Solve area properties for breps, meshes and planar closed curves.
Uit U	Range: Create a range of numbers. The numbers are spaced equally inside a numeric domain. Use this component if you need to create numbers between extremes. If you need control over the interval between successive numbers, you should be using the [Series] component.		Substransports	Circle: Create a circle defined by base plane and radius.
HARMHONDOW	Construct Poin coordinates.	nt: Construct a point from {xyz}	Createringtaine	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.

















tr the directed only the red circles		19	Substeeges 3D	Domain: Create a numeric domain from two numeric extremes.
R	hinoFabStudio	<i>Play Video: Select only the red circles</i>		
The second secon	Sub List: Extra a list are identif is stored at inder stored at index subset allows y elements as a r	ict a subset from a list. Elements in Fied by their index. The first element ex zero, the second element is one and so on and so forth. The ou to copy a continuous range of new list.		
Understand Image: Control of the second s	Divide: Divide a curve into equal length segments			
theorem of the second s	List Item: Retr	rieve a specific item from a list.	Cerementary	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





SudoHopper3D		20 Play Video: Draw these arcs from these three lines		
	RhinoFallStudio*			
	Line: Create a	line between two points.		
The second states	Divide: Divide	a curve into equal length segments		
Crossestimistic Crosse	Arc 3Pt: Creat	e an arc through three points.	energy where a state of the sta	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





CtraqqoHobu2		21	Sudditoper3D	Rectangle: Create a rectangle on a plane															
Draw onl	hinofabStudio'	<i>Play Video: Random reduce few rectangles</i>	L L <tr td=""> <!--</th--><th>Random Reduce: Randomly remove N items from a list</th></tr> <tr><th>Nutheringger 20</th><th>Series: Create are spaced acco need to distribu range, consider instead.</th><th>a series of numbers. The numbers ording to the {Step} value. If you ate numbers inside a fixed numeric using the [Range] component</th><th></th><th></th></tr> <tr><th>Futuregreat 20</th><th>Range: Create are spaced equi- this component between extren interval betwee be using the [S</th><th>a range of numbers. The numbers ally inside a numeric domain. Use if you need to create numbers nes. If you need control over the n successive numbers, you should eries] component.</th><th></th><th></th></tr> <tr><th>Hutteringger/ED</th><th>Construct Poin coordinates.</th><th>nt: Construct a point from {xyz}</th><th>CE-standard</th><th>Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.</th></tr>	Random Reduce: Randomly remove N items from a list	Nutheringger 20	Series: Create are spaced acco need to distribu range, consider instead.	a series of numbers. The numbers ording to the {Step} value. If you ate numbers inside a fixed numeric using the [Range] component			Futuregreat 20	Range: Create are spaced equi- this component between extren interval betwee be using the [S	a range of numbers. The numbers ally inside a numeric domain. Use if you need to create numbers nes. If you need control over the n successive numbers, you should eries] component.			Hutteringger/ED	Construct Poin coordinates.	nt: Construct a point from {xyz}	CE-standard	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.
Random Reduce: Randomly remove N items from a list																			
Nutheringger 20	Series: Create are spaced acco need to distribu range, consider instead.	a series of numbers. The numbers ording to the {Step} value. If you ate numbers inside a fixed numeric using the [Range] component																	
Futuregreat 20	Range: Create are spaced equi- this component between extren interval betwee be using the [S	a range of numbers. The numbers ally inside a numeric domain. Use if you need to create numbers nes. If you need control over the n successive numbers, you should eries] component.																	
Hutteringger/ED	Construct Poin coordinates.	nt: Construct a point from {xyz}	CE-standard	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.															





sudoHopper3D		22	SudoHopper2D	Polygon: Create a polygon with optional round edges.
	hinoFabStudio	<i>Play Video: Draw few polygons from small to large in the Y direction</i>		
Nuterreport D	Populate 2D: with points	Populate a 2-Dimensional region		
Sudategeur 20 U N M M M M M M M M M M M M M	Bounds: Creat encompasses a	e a numeric domain which list of numbers.		
Noteries and the second	Remap Numb numeric domai	ers: Remap numbers into a new n	Circuit Works	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





Arrithm view of the magnetic straight of the m		23	Substopper 3D	Rectangle: Create a rectangle on a plane
Rectangular a	InterfabStudie'	<i>Play Video: Rectangular array, with a single magnet</i>		
Folderingson 2D	Series: Create are spaced acco need to distribu range, consider instead.	a series of numbers. The numbers ording to the {Step} value. If you te numbers inside a fixed numeric using the [Range] component		
Eventregoer/10	Range: Create are spaced equ this component between extren interval betwee be using the [S	a range of numbers. The numbers ally inside a numeric domain. Use if you need to create numbers nes. If you need control over the n successive numbers, you should eries] component.		
Vetteringerent Image: state state state	Construct Poi coordinates.	nt: Construct a point from {xyz}	Crusticities	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.



Rhino3D.Education

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9 Rec and draw 9 Circles		Subotopper 3D	Circle: Create a circle defined by base plane and radius.
Divide Srf int	Play Video: Draw 9 or more circles on top of a flat surface		
Suddropper/D	Divide Domain: Divide a two dimensional-domai into equal segments	n	
Eventrequent D	Isotrim: Extract a isoparametric subset of a surface		
Substranges 70 L 1 G M ² C J G V C C C C C C C C C C C C C C C	Area: Solve area properties for breps, meshes an planar closed curves.	d	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





SudoHopper3D L: 1		25	Substeeges 3D	Line: Create a line between two points.
Connect circle	hinoFabStudio	<i>Play Video: Draw an ellipse and a circle, divide both and connect the points</i>		
Statesport	Circle: Create a radius.	a circle defined by base plane and		
Subarrayor 40	Scale NU: Scal factors.	e an object with non-uniform		
Nutrempose 2D $ \begin{array}{c} $	Divide: Divide	a curve into equal length segments	eterotopic contractions of the second s	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





s and connect with lines		26	Subtroper2D	Line: Create a line between two points.
Draw 2 Circle	RhinoFabStudio	<i>Play Video: Wire frame tower with two circles</i>		
Substrates 10	Circle: Create radius.	a circle defined by base plane and		
Valetregener PD	Rotate: Rotate	e an object in a plane.		
Substrate 20	Divide: Divide	a curve into equal length segments	representation of the second s	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





SudoHopper3D	J ^{LI}	27	Sudotoper 2D	Rotate Axis: Rotate an object around an axis.
Praw tange	NinoFabStudio'	<i>Play Video: Draw curves tangent to the points on the curve</i>	L 1 L 1 L 1 L 1 L 1 L 1 L 1 L 1 L 1 L 1	Move: Translate (move) an object along a vector.
Threadshead	Divide: Divide	a curve into equal length segments		Line: Create a line between two points.
Characteristical State	SDL: Create a l tangent and len	ine segment defined by start point, gth.		
	Unit Z: Unit ve	ctor parallel to the world {z} axis.	Cervit-visible Cervit-visible	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





right for the sequence of the		28	Subtraction of the subtraction o	Domain: Create a numeric domain from two numeric extremes.
	 ↓ ↓	<i>Play Video: Rectangular array with polygons with random number of edges</i>	Substrangest 30	Random: Generate a list of pseudo random numbers. The number sequence is unique but stable for each seed value. If you do not like a random distribution, try different seed values.
Substrate Image: State Image: State	Series: Create a series of numbers. The numbers are spaced according to the {Step} value. If you need to distribute numbers inside a fixed numeric range, consider using the [Range] component instead.		Substreeper 20	Polygon: Create a polygon with optional round edges.
Statistical Statistics	Range: Create a range of numbers. The numbers are spaced equally inside a numeric domain. Use this component if you need to create numbers between extremes. If you need control over the interval between successive numbers, you should be using the [Series] component.			
Setetioper30 Image: Setetion of the set of	Construct Poi coordinates.	nt: Construct a point from {xyz}	Centratine	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





Bino Paulice Interview		29	Suddtopper2D	Simple math components
		<i>Play Video: Scale circles along the X or Y axis with equal distance in between them</i>	Luting of the second se	Circle: Create a circle defined by base plane and radius.
Valenteper 3D	Series: Create a series of numbers. The numbers are spaced according to the {Step} value. If you need to distribute numbers inside a fixed numeric range, consider using the [Range] component instead.			
Valeboord Image: State of the state of	Construct: Construct a point from {xyz} coordinates.			
Nuderlogue 2D	Mass Addition: Perform mass addition of a list of items		et un un de la construction de l	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





SudoHopper3D		30	Suddioper2D	Divide: Divide a curve into equal length segments
	RhinolfabStudio	<i>Play Video: Make a 3D parametric ring</i>	Rotatinger 28	Construction Planes: XY, XZ and YZ
Image: Second	Circle: Create a circle defined by base plane and radius.		Statespace 20	Rotate: Rotate an object in a plane.
	Unit U Y: Unit vector parallel to the world $\{y\}$		Valentegers 20 Image: Constraint of the second s	Arc: Create an arc through three points.
	Move: Translate (move) an object along a vector.		C. Certification	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





SudoHopper 3D			
	Play Video: Draw a pave (Honeycomb) of circles		
Hadelinger 20	Series: Create a series of numbers. The numbers are spaced according to the {Step} value. If you need to distribute numbers inside a fixed numeric range, consider using the [Range] component instead.		
Binderformer and Binder	Move: Translate (move) an object along a vector.		
Sudationers 10	Circle: Create a circle defined by base plane and radius.	Cardination of the second seco	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





SudoHopper3D L: 1		32	Suborogen 3D	Line: Create a line between two points.
Draw the lin	hinol'abStudio'	<i>Play Video: Draw a polyline at the end of all those end points</i>	Extensional States	Series: Create a series of numbers. The numbers are spaced according to the {Step} value. If you need to distribute numbers inside a fixed numeric range, consider using the [Range] component instead.
Huteringson JD	Construct Point: Construct a point from {xyz} coordinates.		Subscreen 20	SDL: Create a line segment defined by start point, tangent and length.
Image: second	Circle: Create a circle defined by base plane and radius.			Polyline: Create a polyline connecting a number of points.
$\mathbf{Fridering over D}$	Divide: Divide a curve into equal length segments		Cleansaction of the second sec	Params: Parameters, the list of all of them in one single card. You can use it to select only one object from the Rhino model. You can use any param as many times as you need. Sample: You may need two numeric sliders, you can use one card to do so.





Teacher's guide

Level: 1



SudoHopper3D

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