

A CREATIVE GEOMETRY WORKFLOW

GeoBlocks

Geometry Nodes, made approachable.

A complete visual guide to building, shaping, scattering, animating, and refining procedural geometry through ready-to-use blocks.

63	9	1
CREATIVE BLOCKS	TOOL CATEGORIES	CONNECTED WORKFLOW

COMPLETE USER GUIDE

Designic.net

01 / WELCOME

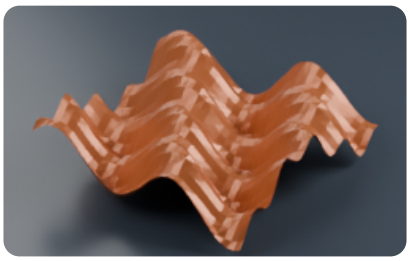
Create more. Wire less.

GeoBlocks turns common Geometry Nodes workflows into readable, adjustable blocks inside the 3D Viewport.

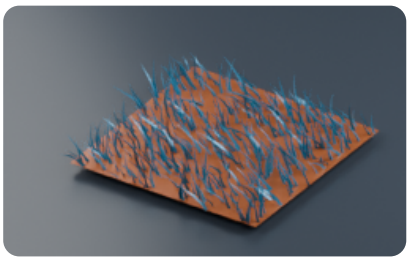
Build a procedural stack from ready-made tools, adjust the controls where you work, and keep the geometry editable until you decide to finish. The goal is not to replace Geometry Nodes, but to make practical procedural work more accessible.



Procedural cities



Animated surfaces



Instanced vegetation

What you can make

SHAPE

Create, cut, wrap, remesh, and refine geometry.

DISTRIBUTE

Array, scatter, grow, and place objects on surfaces or curves.

ANIMATE

Build motion-driven visual effects with accessible controls.

STYLE

Manage shading, materials, texture mixes, and custom sources.

A simple principle

Choose the mesh or curve, start a stack, add the blocks you need, and refine their settings in place. Each block builds on the geometry produced by the blocks above it.

02 / GETTING STARTED

Your first procedural stack

The entire workflow starts in the 3D Viewport, with no manual node wiring required.

01

Select geometry

Choose a mesh or curve object in the scene.

02

Open GeoBlocks

Press N in the 3D Viewport and choose the GeoBlocks tab.

03

Start Stack

Create the stack on the active object.

04

Add Block

Browse by category or use the visual previews to select an effect.

05

Tune and reorder

Adjust parameters, duplicate blocks, and change their order.

06

Finish when ready

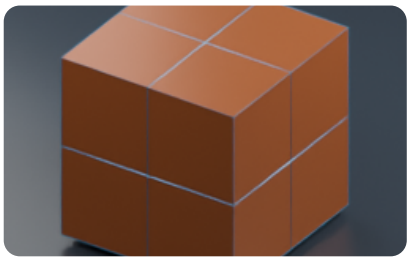
Keep the live stack, or use Finish as Editable Modifier to expose a more compact modifier interface.

Keep edits non-destructive
The original mesh remains available while the stack is live. Save a project copy before committing complex changes.

03 / WORKFLOW DESIGN

Build effects that work together

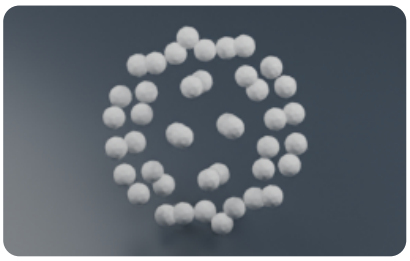
Block order, selection, and value sources are the foundation of a predictable procedural workflow.



Add surface detail



Shape the surface



Populate the result

The stack is read from top to bottom

A subdivision block can provide points for displacement; a deformation block can reshape a surface before scatter; a material block can style the resulting output. Changing the order changes the geometry that later blocks receive.

Control only the area you need

Apply to supports filters such as random regions, height, facing direction, painted groups, and proximity to a selected object.

Drive values procedurally

A numerical control can use Fixed, Random, Noise, Height, Distance, Time, or Painted input where the block exposes a value source.

Make variations quickly

Duplicate a block, change its settings, and save frequently used configurations as user presets.

Finish with intent

The editable modifier exposes supported parameters. Some structural choices become fixed after finishing, so preserve a working copy.

Surface detail matters

Effects that bend, ripple, crack, peel, or deform a surface need enough mesh points. Use the integrated Add Subdivide First suggestion where available; unnecessary subdivision increases workload.

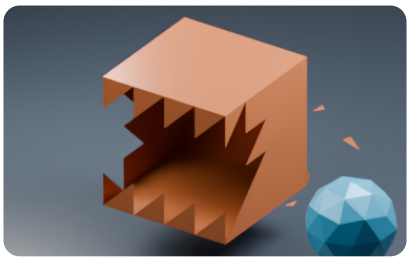
04 / MOTION & EFFECTS

Bring geometry into motion

Ready Effects simplify common visual sequences while preserving the ability to adjust the underlying blocks.



Impact / Pierce



Break Apart by Touch



Motion Trail

Motion capture: the essential sequence

STEP 1

Animate a source

Keyframe the projectile, brush, or moving object along the intended path.

STEP 2

Choose the target

Add Impact, Break Apart by Touch, or Motion Trail to the correct object.

STEP 3

Set the range

Choose From / To frames, capture density, radius, and relevant offsets.

STEP 4

Read Motion / Refresh

Capture the evaluated movement, then scrub the timeline to inspect the result.

What these effects are - and are not

Impact and Break Apart by Touch are visual geometry effects, not general-purpose fracture solvers. Motion snapshots must be refreshed when the source animation, target topology, or relevant hit settings change.

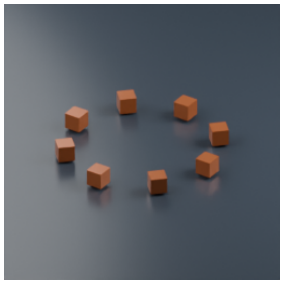
Other one-click creative motion

Gather / Assemble reunites scattered surface pieces; **Reveal / Grow** builds a shape over time; **Domino Chain** creates a timed falling sequence; **Peel / Curl** animates curling surface patches.

04A / OPTIONAL BLOCK ANIMATION

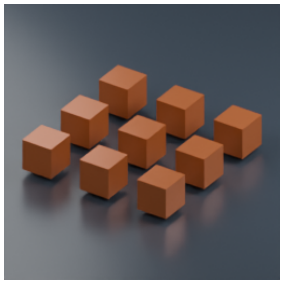
Seven blocks. One timeline.

Built-in procedural motion brings useful movement to everyday modeling blocks, with no manual keyframes.



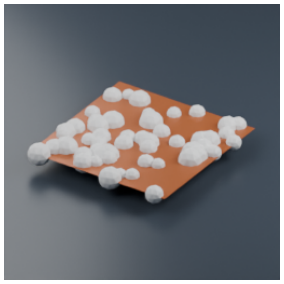
Array (Circle)

Rotate around the center, pulse the radius, or combine both.



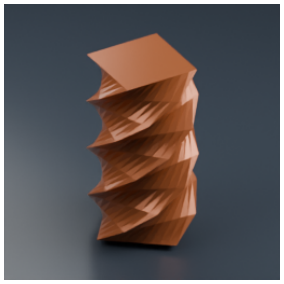
Array (Grid)

Shift rows in a flowing, staggered sequence.



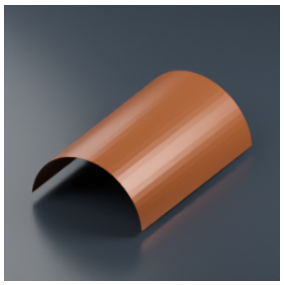
Scatter on Surface

Grow scattered instances with subtle staggered timing.



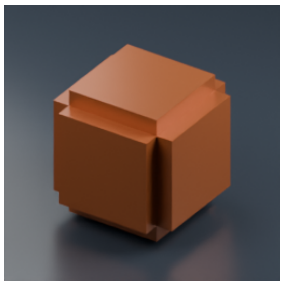
Twist

Twist the mesh gradually, then return toward its base shape.



Bend

Bend toward the chosen Amount and unfold smoothly.



Extrude

Grow an extrusion from zero to its target distance.



Displace

Animate displacement strength without changing the base noise setup.

ANIMATION IS OPTIONAL

Every effect starts static. Enable Animate only where motion adds value, and leave your existing stack settings intact.

04B / ANIMATION CONTROLS

Motion, without keyframes.

Each supported block uses the same simple animation controls. Play the timeline to preview the result.

01

SELECT

Add one of the seven supported blocks to your stack.

02

ENABLE

Turn on Animate (optional) inside that block.

03

PLAY

Adjust the settings and start the timeline playback.

A shared control language

Speed	Cycles per second. Smaller values produce slower, easier-to-follow motion.
Start Frame	The frame where animation begins. Timeline movement stays paused before it.
Loop	Repeats motion; shape growth plays forward and backward without a hard jump.
Reverse	Runs the effect in the opposite direction or reverses its growth progression.
Motion Amount	Circle pulse and grid row movement have an additional intensity control.

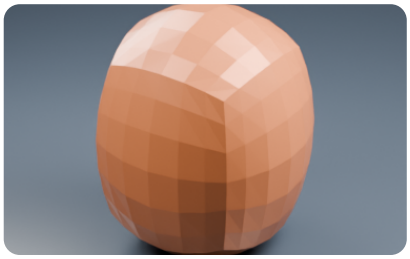
Playback and performance

Motion is evaluated directly by Geometry Nodes Scene Time - no Python-generated geometry rebuild on each frame. Numeric motion edits use live modifier inputs; structural changes wait until playback stops. Complex scenes may still need a simpler preview.

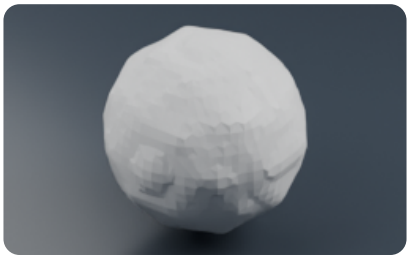
05 / FEATURE SPOTLIGHT

Morph Between Shapes

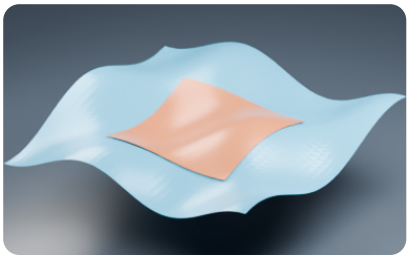
Blend one mesh toward another, with mapping methods suited to different geometry and topology conditions.



Animated shape change



Volume-based transition



Surface-aware mapping

The standard approach

Volume Blend (Exact Ends) uses the original source at the beginning and the exact target at the end, with an approximate signed-distance-field transition between them. It can handle meshes with different vertex layouts, but it is more demanding and may soften small features.

Preview vs. final detail

Viewport Detail starts at 48 for responsiveness. Render Detail starts at 112 for finer output; both are adjustable.

Clean unwanted islands

Remove Small Fragments is on by default. Adjust Minimum Island (%) only if intentional tiny parts are disappearing.

Choose the right mapping

Matching Vertices is the most exact option when vertex counts and order correspond. Other surface mappings are approximations.

Texture blending is a beta feature

Blend PBR Textures can transition image-based materials, but projected UVs may stretch or jump on difficult meshes.

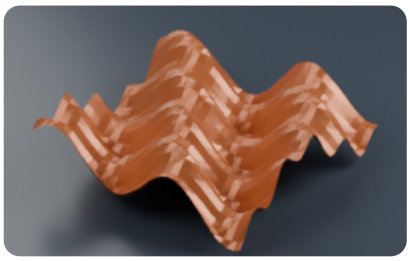
Render with realistic expectations

The volume method is an approximation between exact endpoints. Very different shapes may show temporary surface artifacts. Animation caching is not built into the Morph control; reduced viewport detail is the first performance adjustment.

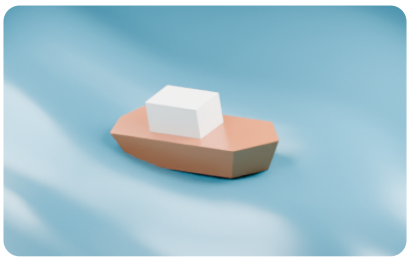
06 / FEATURE SPOTLIGHT

Water, floating and surface fit

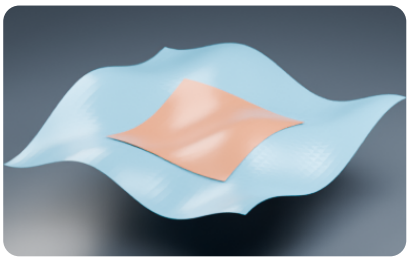
Let a surface drive another object's evaluated geometry - from rolling water to precise surface-following forms.



Ocean Waves



Float on Surface



Surface Conform

Float on Surface: a practical setup

1. **Choose the object**
   Select the boat, raft, or object that should follow the water.

2. **Add Float on Surface**
   Use Ready Effects > Float on Surface in the GeoBlocks block browser.

3. **Choose a surface**
   Pick a moving water mesh directly, or use Create Water for a linked animated surface.

4. **Tune the response**
   Adjust Height Above Surface, Footprint, Follow Tilt, Maximum Tilt, bobbing, and rocking.

5. **Play and refine**
   Scrub the timeline; use wave controls on the linked surface if the motion needs adjustment.

Keep the behavior clear

Floating is procedural geometry-following, not buoyancy simulation. It does not animate the object transform; separate child objects will not automatically follow. Surface Conform works on a mesh or a collection of surfaces and benefits from enough source geometry.

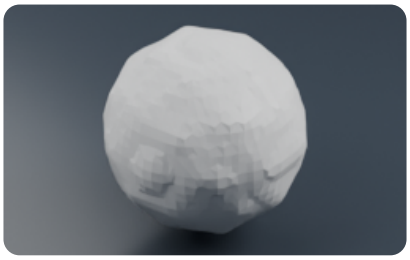
07 / BLOCK LIBRARY

01 Smooth & Detail

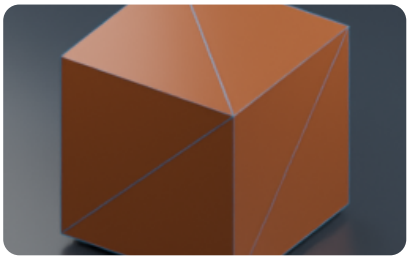
Prepare mesh density, topology and surface direction before building complex effects.



Subdivision Surface



Voxel Remesh



Triangulate

Subdivision Surface

Smooths the shape by subdividing it (like the Subdivision Surface modifier).

Triangulate

Turns all faces into triangles.

Subdivide (no smoothing)

Adds more faces without changing the shape.

Dual Mesh

Swaps faces and vertices (hexagon-style meshes).

Merge by Distance

Merges vertices that are closer than the distance.

Flip Faces

Reverses face direction (fixes inside-out faces).

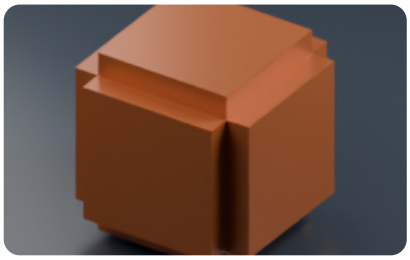
Voxel Remesh

Rebuilds the surface from voxels. Smaller size = more detail (and slower).

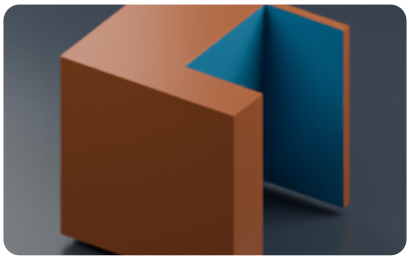
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02 Shape

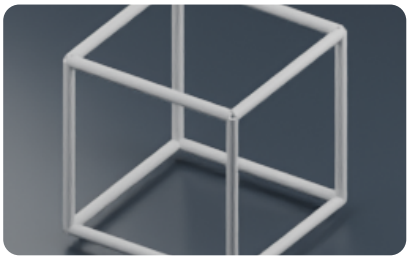
Construct, combine, cut, and reshape geometry with direct controls.



Extrude



Boolean



Wireframe (Pipes)

Extrude

Pushes faces, edges or vertices out along their normals.

Boolean

Cut, add or intersect with another mesh object.

Scale Faces (Inset)

Scales each face around its own center. Combine with Extrude for an inset look.

Add Another Object

Adds the geometry of another object into this one.

Mirror

Adds a mirrored copy across the object's origin. Merge Distance 0 = no merging.

Convex Hull

Wraps the shape in the smallest convex mesh.

Wireframe (Pipes)

Turns the edges into pipes.

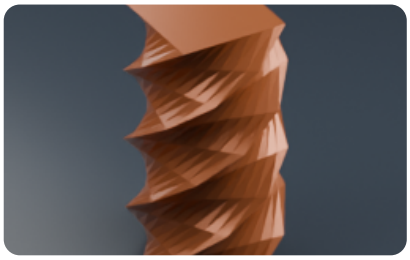
Delete Part

Deletes the parts chosen in 'Apply to'. You must choose something other than Everything.

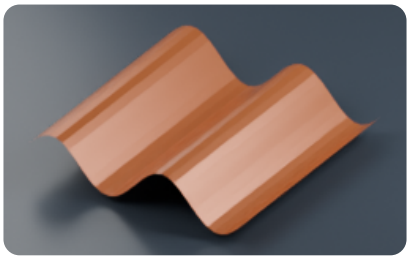
07 / BLOCK LIBRARY

03 Deform

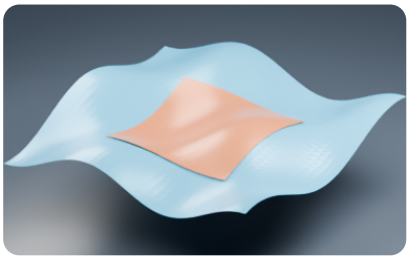
Move points and create shape changes driven by space, objects, and time.



Twist



Wave



Surface Conform / Shrinkwrap

Move / Rotate / Scale

Moves, rotates and scales the whole geometry.

Wave

Ripples the surface.

Displace (Noise / Random)

Moves every point using noise or randomness.

Ocean Waves

Create traveling waves on a mesh surface with enough points.

Inflate

Pushes every point along its normal (negative = shrink).

Bend Into Cylinder / Sphere

Wrap a flat shape into a cylindrical or spherical form.

Twist

Twists the shape around the Z axis (or X / Y); the higher the point, the more it turns.

Snap to Grid

Snaps every point to a grid (blocky / low-res look).

Wind Sway

Animate the bending motion of a surface with adjustable wind and gusts.

Surface Conform / Shrinkwrap

Fit geometry to the surface of an object or selected collection.

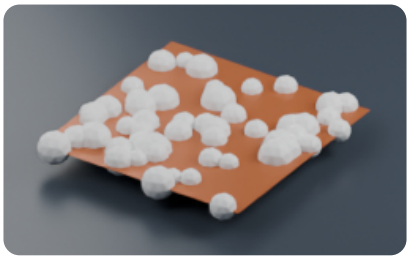
07 / BLOCK LIBRARY

04 Duplicate & Scatter

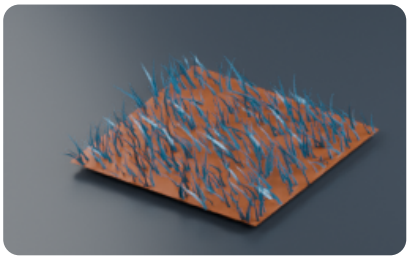
Populate scenes through repeatable arrangements and procedural distributions.



City / Buildings



Scatter on Surface



Grass & Plants

Array (Line)

Repeat geometry along a line; Realize lets later blocks affect every copy.

Array (Circle)

Repeats the shape around a circle.

Array (Grid)

Repeats the shape in a grid centered on the origin.

Scatter on Surface

Scatters copies of a shape (or your object / collection) over the surface.

Shapes on Points

Puts a shape on every point (vertex) of the mesh. Size and stretch can change by height, distance, noise or time.

Endless Scroll

Move repeated objects along a looping path during playback.

City / Buildings

Fill a grid with box buildings or user-selected objects.

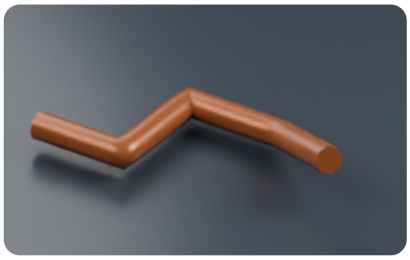
Grass & Plants

Generate grasses, foliage, spikes or custom instanced shapes.

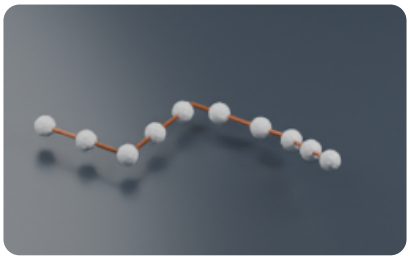
07 / BLOCK LIBRARY

05 Curves

Turn paths into useful geometry and place objects along carefully controlled routes.



Curve to Mesh (Pipe / Ribbon)



Objects Along Curve



Round Corners

Curve to Mesh (Pipe / Ribbon)

Turn curves into solid pipes or flat ribbon geometry.

Round Corners

Smooth corners of a curve with adjustable segments.

Objects Along Curve

Repeat objects along a curve with spacing control.

Curve Detail

Resample a curve into evenly spaced points for smoother results.

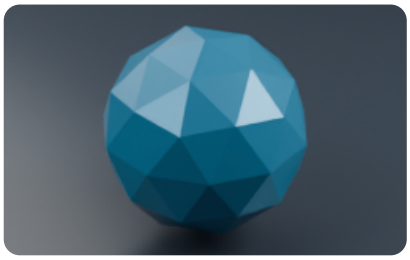
WORKFLOW NOTE

Resample first for even spacing, then build pipes, ribbons, posts or other repeated elements.

07 / BLOCK LIBRARY

06 Shading

Control smoothness, materials, colors, images, and material assignment.



Color (Two Colors)

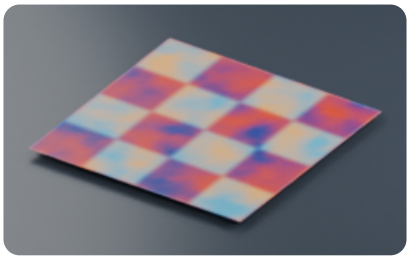
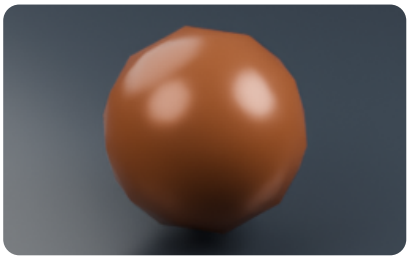


Image Mix (Two Pictures)



Shade Smooth / Flat

Shade Smooth / Flat

Switches smooth or flat shading.

Image Mix (Two Pictures)

Blend two image textures over a surface.

Smooth by Angle

Smooth shading everywhere except sharp corners. Edges sharper than the angle stay crisp (like the edges of a box), flat parts stay smooth.

Material from Object

Use the material evaluated from another object, where supported.

Set Material

Assigns a material to the geometry (or just the part chosen in 'Apply to').

Replace One Material

Replace one material throughout the geometry while leaving its other materials alone.

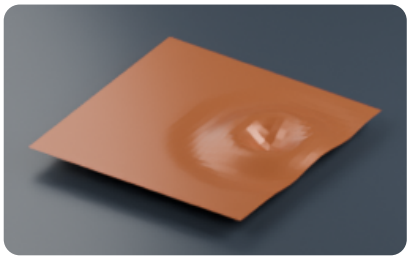
Color (Two Colors)

Blend two colors using random, height, distance, noise or time.

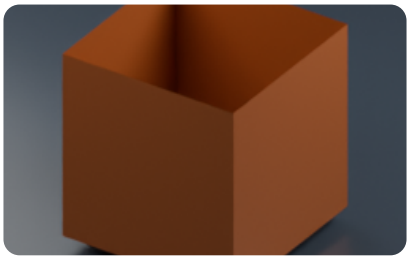
07 / BLOCK LIBRARY

07 Effects

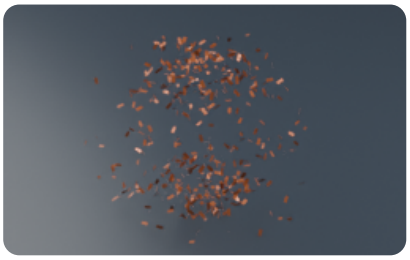
Turn static objects into animated, growing, scattering or repeating visual sequences.



Ripples (Water Drop)



Reveal / Grow (Animated)



Explode (Pieces Fly Away)

Ripples (Water Drop)

Rings spread out from an object (or the middle), like a drop in water. Press Play. Needs a surface with many points.

Hair

Creates a separate Curves-based hair object with styling and movement controls.

Reveal / Grow (Animated)

Reveal a shape from bottom to top, or animate liquid-style upward growth.

Rope / Cable Between Two Points

A hanging rope or cable between two objects (or two empties).

Explode (Pieces Fly Away)

Send surface faces outward using timed, directional piece motion.

3D Text

Generate solid text with adjustable depth and orientation.

WORKFLOW NOTE

Add surface detail before a shape-driven effect, then scrub playback to inspect behavior.

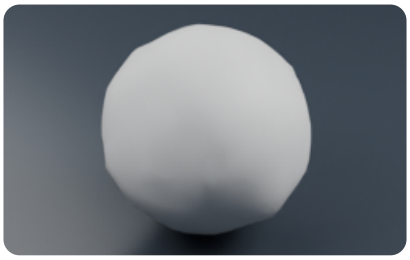
07 / BLOCK LIBRARY

08 Volumes

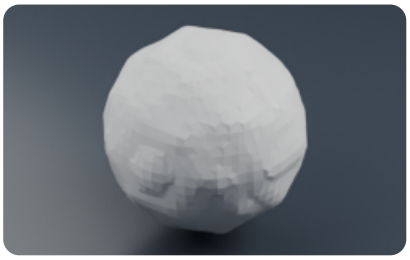
Convert surfaces or points into volumetric effects or soft reconstructed geometry.



Shape to Fog / Volume



Points to Cloud / Surface



Voxel Remesh

Shape to Fog / Volume

Convert a closed shape to fog or a voxel-based solid surface.

Points to Cloud / Surface

Rasterize mesh or curve points into a fog volume or solid surface.

WORKFLOW NOTE

Voxel and volume steps can become expensive at finer resolution. Start coarse, then increase quality.

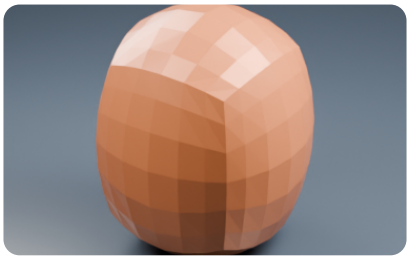
07 / BLOCK LIBRARY

09 Ready Effects

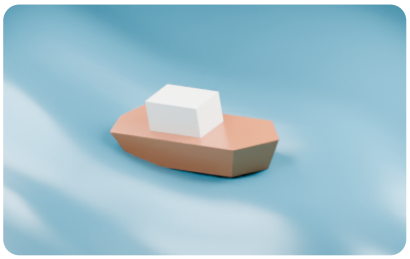
Start complex creative workflows from task-oriented tools and editable setups.



Impact / Pierce



Morph Between Shapes



Float on Surface

Impact / Pierce

Capture a projectile path to drive bursts and optional hole creation.

Morph Between Shapes

Blend the current shape into a target mesh using a selected mapping method.

Break Apart by Touch

Capture contact from an animated brush and release surface faces.

Spreading Cracks

Spread grooves across a subdivided surface; this is not physical fracture.

Gather / Assemble

Gather separated surface pieces into the original shape with timed motion.

Crystal / Shape Growth

Grow crystals or custom objects across a surface with flexible density and timing.

Motion Trail

Capture an animated path and generate fading tubes or pieces.

Domino Chain

Build a timed procedural domino chain on a line or curve.

Imprint / Emboss

Emboss or indent the target using a suitable solid cutter.

Float on Surface

Follow an animated water or surface mesh with whole-object motion and tilt.

Peel / Curl Surface

Peel and curl surface patches with controls for curl detail and timing.

08 / CONTROL SYSTEM

Precision without complexity

Many numeric controls and selections can respond procedurally instead of remaining fixed constants.

Value sources

Fixed

A single value everywhere.

Random

Independent values on elements.

Noise

Smooth organic variation.

Height

Blend values from bottom to top.

Distance

React to proximity to an object.

Time

Animate a repeating value with playback.

Painted

Control the area directly with a painted weight layer.

Apply to: select only the relevant geometry

- Everything
- Random
- Above height
- Below height
- Facing up
- Facing down
- Vertex group
- Inside a sphere
- Inside a box

Painted variation
Where a block supports Painted values, use Start Painting to create editable local influence instead of applying an effect uniformly.

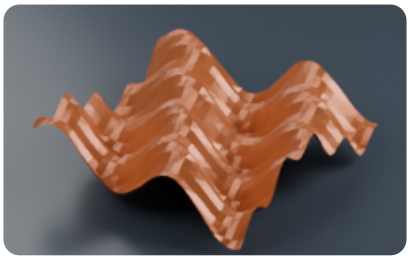
09 / STARTER CONTENT

Start with a working example

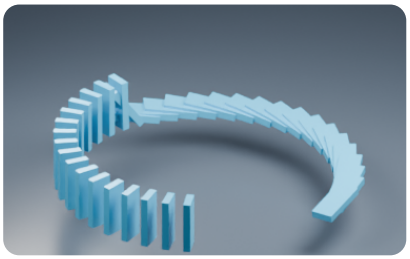
Browse visual presets or open a separate demo scene to understand settings before applying them to your own assets.



City layout



Water animation



Domino timing

Two ways to learn

Try Example in New Scene

Creates a separate practice scene with camera and lighting while your original scene remains available in the scene selector.

Add Setup to Selected

Appends a prepared combination of editable blocks to the selected object, while keeping its existing stack.

Useful starting recipes

Terrain
Subdivide + Displace + Smooth

Ocean Waves
Subdivide + Transform + Ocean

Twisted Tower
Subdivide + Transform + Twist

Scatter Field
Subdivide + Scatter

Road from Curve
Round Corners + Curve to Mesh

Exploding Title
3D Text + Triangulate + Explode

Grass Field
Procedural vegetation

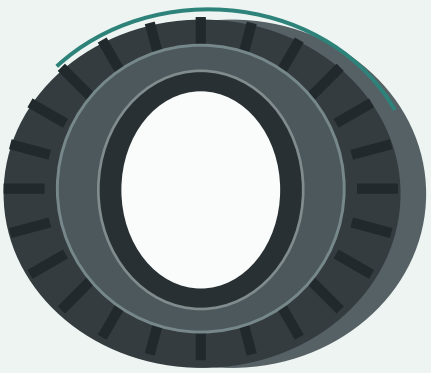
Shatter Glass
Dense triangles + timed explode

Make your own library
Save successful combinations as user presets. Keep a simple example project for each complex workflow so settings can be reproduced reliably.

09A / CREATE TIRE

Create a complete car tire

One click generates a hollow rubber tire, ready for live editing in the 3D Viewport.



Axle: X

QUICK START

1. **Switch to Object Mode**
   Creation and live controls require Object Mode.
2. **Open GeoBlocks**
   Press N in the 3D Viewport, then choose GeoBlocks.
3. **Click Create Tire**
   No mesh selection required. Uses the 3D Cursor position.
4. **Adjust live settings**
   Select the tire and edit its dimensions and tread.

Four distinct tread styles

Choose a starting look; grooves are modeled into the rubber surface, not painted textures.



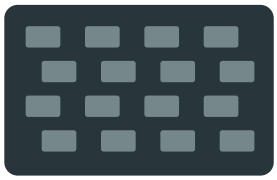
Sport

Directional V-shaped channels.



Road

Drainage grooves and angled sipes.



Off-Road

Chunky staggered tread blocks.



Slick

Smooth surface, no grooves.

Viewport detail

Use while exploring dimensions and tread settings. Keeps interaction more responsive.

High detail

Use for close-up modeling and final output. More mesh detail requires more memory.

WHERE IT LIVES

Create Tire is a standalone mesh generator in the GeoBlocks tab. It does not add a Geometry Nodes block or modify existing stacks.

09B / TIRE CONTROL REFERENCE

Shape, tread, finish

Tune the tire in Object Mode. Changes rebuild the base mesh automatically while it stays live.

TIRE DIMENSIONS

Outside Diameter
Overall exterior diameter, in Blender scene units.

Tire Width
Width across the tread and sidewalls.

Inner Opening
Opening diameter as a fraction of outside diameter.

Sidewall Bulge
How much the tire sidewalls project outward.

Shoulder Roundness
Adjusts the curved transition between the tread crown and the sidewalls.

TREAD SETTINGS

Style
Sport, Road, Off-Road or Slick tread pattern.

Groove Depth
Physical depth of carved channels; hidden for Slick.

Pattern Repeats
How often tread motifs repeat around the tire.

Detail
Viewport for live work; High for finer geometry.

RIM & FINISHING

Create Alloy Rim
Optional separate, parented alloy-wheel object.

Rim Spokes
Choose 5-12 spokes while the rim option is on.

Finish Tire as Mesh
Stops procedural rebuilding and keeps the tire as an ordinary mesh for Edit Mode changes.

BEFORE EDITING VERTICES
Live controls replace tire geometry; finish first to protect hand-edited vertices or shape keys. Rim controls may also regenerate the separate rim mesh.

10 / PRACTICAL GUIDANCE

Performance & reliability

A controlled setup is usually faster to refine and easier to troubleshoot than maximum detail everywhere.

Viewport slows down

Lower voxel, subdivision, scatter count, or Morph Viewport Detail. Keep final output settings separate.

A deformation looks faceted

Use Subdivide before the deformation, then increase only until the surface is adequately dense.

A morph loses small parts

Reduce fragment filtering when pieces are intentional; increase detail only if the machine can handle it.

A morph changes abruptly

Inspect mapping, source/target topology, and differences between the approximate middle surface and exact endpoints.

Textures stretch while morphing

Texture Blend is experimental; projected UVs may produce seams or distortion, especially with different atlases.

Captured motion is outdated

Repeat Read Motion / Refresh after editing the animation, source dimensions, or affected mesh topology.

An object does not conform

Check that the chosen target is a usable evaluated surface and that the follower is not in its own target collection.

A finished block cannot change mode

Some structural choices are fixed after Finish. Go back to the preserved live setup to change them.

Be clear about procedural effects
Not every effect is a physics simulation. Visual destruction, floating, and timed domino motion are designed for creative control rather than force-accurate physical behavior.

11 / FINAL CHECKLIST

Make your project ready

A few intentional checks help preserve a scene that performs well and remains editable.

OK

Keep a source copy

Preserve original meshes, custom source collections, and a live stack before applying changes.

OK

Use the right geometry

Closed solids are better for some Boolean, imprint, volume, and impact operations.

OK

Match detail to purpose

Start with lower viewport quality; raise final detail only when necessary.

OK

Validate every animated range

Scrub the start, middle and end of each effect, not only the final frame.

OK

Refresh captured motion

Recapture after editing movement or geometry relevant to the recorded interaction.

OK

Pack texture files

Ensure external images are available when a project is moved or shared.

OK

Respect beta limitations

Check UV seams, materials and difficult model pairs before a final render.

GeoBlocks is a creative workflow, not a fixed recipe.

Explore blocks, combine ideas, and build something new.