DRIVERS



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STANDARD, WE HAVE THE POSSIBILITY OF ADDING BASIC MODELS FOR MESH AND CURVES









IN PREFERENCES, ENTER EXTRA AND ADD MORE MODELS

| | Blender Preferences | | | | | | | |
|-------------|--|--|--|--|--|--|--|--|
| Interface | Official Community Testing 🕁 Install 🖓 Refresh | | | | | | | |
| Themes | Enabled Add-ons Only All ~ Q extra X | | | | | | | |
| Viewport | 🕨 🗹 Add Curve: Extra Objects | | | | | | | |
| Lights | ► 🗹 Add Mesh: Extra Objects | | | | | | | |
| Editing | | | | | | | | |
| Animation | | | | | | | | |
| Add-ons | | | | | | | | |
| Input | | | | | | | | |
| Navigation | | | | | | | | |
| Keymap | | | | | | | | |
| System | | | | | | | | |
| Save & Load | | | | | | | | |
| File Paths | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
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| | DRIVERS | | | | | | | |





WE WILL HAVE TO CHOOSE MORE OPTIONS









AS MESH ADD GEAR



| Add | | | | | |
|-----------------------------|----|-----------------------------------|-----|------|------------------------|
| V Mesh | • | Plane | | | |
| Curve | • | Cube | | | |
| Surface | | ○ Circ <u>l</u> e | | | |
| 💣 Metaball | | UV Sphere | | | |
| a Text | | 🕼 Ico Sphere | | | |
| 🔔 Volume | • | Cylinder | | | |
| ກ໌ Grease Pencil | ×. | ○ Cone | | | |
| ★ Armature | | ⊙ <u>T</u> orus | | | |
| # Lattice | | III Grid | | | |
| Emph. | | The Monkey | | | |
| Image | | A FaceBuilder Head | | | |
| | | 🕼 Rock Generator | | | |
| Ught Probe | | Single Vert | ۰ | | 7 |
| | | Round Cube | | | |
| Camera | | Torus Objects | - F | | |
| Speaker | | A Math Function | | | |
| }}} Force Field | ۲ | 🔅 Gears | | Gear | |
| Collection Instance | | Pipe Joints | • | Worm | Names and Constant |
| | | Diamonds | | | Construct a gear mesh. |
| | | Extras | • | | |
| | | Parent To Empty | | | |
| | | | | | |
| | | | | | |



POWER OF AR AND VR GO TO FRONT VIEW









ROTATE GER 90 DEGREES AROUND X-AXIS WITH R, X, 90 AND ENTER







POWER OF AR AND VR ADD EMPTY OBJECT



| Add | |
|--|--|
| ✓ Mesh ⊃ Curve ✓ Surface ✓ Metaball a Text ✓ Volume ☆ Grease Pencil ★ Armature ✓ Lattice | |
| Light Camera Camera Camera Camera Camera Camera Camera | |
| Collection Instance | |





PRESS N-KEY TO SEE OPTION WINDOW

| ✓ Transform ✓ Transform Location: X 0 m ℃a Y 0 m ℃a Z 0 m ℃a Z 0 m ℃a X 90° ℃a | Tool Item |
|---|-----------|
| Location: X 0 m Ca Y 0 m Ca Z 0 m Ca Rotation: X 90° Ca | 100 |
| x 0 m ba Y 0 m ℃a P Z 0 m ℃a W Rotation: x 90* ℃a | ē |
| P Z 0 m ℃ P Z 0 m ℃ P Rotation: X 90* ℃ | |
| P Z 0 m to W Rotation: X 90° ℃ | >. |
| ₩ Rotation: X 90° m | View |
| X 90° m | |
| | Ē |
| 📽 ү о. т | tint; |
| ш z о ъ | 2 |
| XYZ Euler 🗸 🗸 | ¥ |
| Scale: | |
| x 1.000 🕞 | HA |
| Y 1.000 Ca | |
| z 1.000 🕞 | E I |
| Dimensions: | Mixe |
| X 2.17 m | 21 |
| Y 2.17 m | -B |
| 7 04m | = - |
| Within the second se | ē. |









WE WANT TO ROTATE AROUND THE Y-AXIS WHICH IS TOWARDS US



| 9 | ✓ Transform | | | Item |
|--|-------------|-------|------------|-------|
| 0-0-0 | Location: | | | |
| | × | 0 m | ം | 2 |
| | Y | 0 m | <u>7</u> 0 | |
| | Z | 0 m | Ъ | few |
| | Rotation: | | | > |
| | X | 0° | 26 | g |
| 2 | Y. | 0* | °20 | untit |
| | Z | 0* | Ъ | Q R |
| | XYZ Euler | | ٣ | CHW |
| | Scale: | | | |
| | x | 1.000 | 2 m | BVH |
| Contraction of the local division of the loc | Y | 1.000 | 6 | |
| | Z | 1.000 | °ta | gwo |
| | | | | Mixa |
| | | | | 5 |
| | | | | uilde |
| | | | | FaceB |







SELECT GEAR AND THEN MOVE YOUR MOUSE ON THE ROTATION OF THE Y-AXIS













PRESS RIGHT MOUSE KEY AND CHOOSE ADD DRIVER





| | | V Transform | | and a state of | |
|----------------------------------|----------------|-------------|-------|----------------|-------|
| | Ÿ | - mananamm | | | Iten |
| | <u> </u> | Location: | | | 78 |
| | | × | 0 m | В | ₽ |
| | | z | 0 m | | 3 |
| | | Rotation: | | | ž |
| | | | 90* | | 8 |
| A-11 | e , | | 0* > | | untin |
| \overline{x} | Ħ | | | | K2 R |
| | - m | XYZ Euler | | ~ | HW |
| Carrier and Carrier | | Scale: | | | |
| Driven Property. | | | 1.000 | Ъ | ŝ |
| Gear > X Y Euler Rotat | ion | | 1.000 | | |
| | | | 1.000 | | Xam |
| Driver Settings: | | Dimensions: | | | Σ |
| Type: Scripted Expression | | | 2.1 | / m 7 m | |
| Driver Value: 0.000 | | z | 0.4 | 4 m | Built |
| | | | | | Face |
| Expression: | | | | | |
| var + -0.0 | | 1 | | | |
| Use Self | | | | | |
| ERROR: Invalid Python expression | ssion | | | | |
| + Add Input Variable 🥖 🌶 | 16, | | | | |
| (x)~ var | × | | | | |
| Object: | | | | | |
| Type: X Location | | | | | |
| Space: World Space | | | | | |
| Value: 0.000 | | | | | |
| 况 Update Dependencies | | | | | |
| 2 Show in Drivers Editor | TAXABLE PARTY. | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

YOU WILL SEE SUCH A WINDOW







CHOOSE EMPTY IN THE OBJECT WINDOW







THE TYPE IS THE X LOCATION









MOVE EMPTY OBJECT ON THE X AXIS

YouTube

https://youtu.be/xmSER4p9qnl





ADD SECOND GEAR







MOVE AXIS Z AND ADD DRIVER THE SAME WAY









MOVE EMPTY OBJECT ON THE X AXIS

YouTube

https://youtu.be/MYTNvRLff9U





WE HAVE TO IMPROVE THE DRIVER CLICK WITH THE RIGHT KEY ON FIELD Y









CHOOSE EDIT DRIVER

| Location: | | | E. |
|-------------------------------|------------|------------|------------|
| | 0 m | Ъ | - <u>8</u> |
| Y: | 0 m | Ъ | Ë. |
| × Delete Drivers | 339 m | Ъ | View |
| Delete Single Driver | | | E |
| Copy Driver | 90° | Ъ | Ĕ |
| 2 Edit Driver | 0° > | Ъ | - THE |
| Opro Drivers Editor | 0° | Ъ | er er |
| Edit the drivers for the | e property | connect | ed repr |
| to Keying Set | 1.000 | <u>a</u> _ | Ŧ |
| TKeying Set 🔍 K | 1.000 | - - | 6 |
| 5 to Default Values Backspace | 1.000 | - - | ٤ |
| gle to Default Value | | | Mixa |
| to Selected | 2.3 | 17 m | БI |
| Copy Single to Selected | 2.3 | 17 m | lder |
| Copy Data Path Or # C | C | .4 m | eBu |
| Copy Full Data Path ⊕ ℃ 第 C | | | - La |
| Copy as New Driver | | | P. |
| Conline Manual F1 | | | |
| | | | |





IN THE EXPRESSION WINDOW ENTER -VAR

| Driven Property: |
|--|
| Type: Scripted Expression Driver Value: 0.000 Expression: Ver |
| + Ada |
| Value: 0.000 |
| 2 Show in Drivers Editor |







MOVE EMPTY OBJECT ON THE X AXIS

YouTube

https://youtu.be/wSoMtrzkdOE



POWER OF AR AND VR IN THE EXPRESSION WINDOW ENTER -VAR+5.5

| <u> </u> | ~~ | | |
|----------|---------------|-------------------|--------------------------------------|
| | Driven Pro | operty: | , v |
| | 🔳 Gear | :001 > 😤 Y EL | ler Rotation |
| | Driver Set | ttings: | 3 |
| | Type: | Scripted Express | ion v 🤉 |
| | Driver Va | lue: 5.500 | |
| | | | |
| | Expressio | | 3 |
| | -var+5. | 5 | า |
| | Use Se | elf | 2 |
| | + Add | Input \ | 7 m |
| | (X)~ v | ar | 7 m |
| | Object: | 🔳 Empt | |
| | Type: | X Location | |
| | Space: | World Space | ~ |
| | Value: | 0.000 | |
| | | | |
| | 2 | Update Depender | ncies |
| | *Z | Show in Drivers B | ditor |
| | | | and the particular statements of the |







MOVE EMPTY OBJECT ON THE X AXIS

YouTube

https://youtu.be/lqe3XwkidQc





INSERT CUBE AND SCALE IT LIKE ON SCREEN









ADD DRIVER FOR Z-AXIS LOCATIONS









MOVE EMPTY OBJECT ON THE X AXIS

YouTube

https://youtube.com/shorts/SG3voaxkuSw





ENTER THE CUBE EDIT MODE AND MOVE IT ON THE Z-AXIS SO THAT ORIGIN IS DOWN







POWER OF AR AND VR GO BACK TO OBJECT MODE







POWER OF AR AND VR GO TO CONSTRAINT











AND CHOOSE LIMIT LOCATION





POWER OF AR AND VR SET MAXIMUM Z=0

| sceBuil | 8 | ¥ | R |) | |) | | v | D |
|---------|--------------|---------|----------------|-----------------------|---------------|-------|--------------|-----|---|
| Ē | ł۲ | 🔲 Cube | 2 | | | | | Ń | > |
| | a | Add Obj | ect Constraint | | | | | ~ | |
| | T | ~ 1. | Limit Location | | | | ⊙ ∨ > | < | |
| | ø | | Minimum > | (| | 0 m | | ŀ | |
| | 13 | | ١ | 1 | | 0 m | | | |
| | S | | Z | | | 0 m | | | |
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| | | | ١ | | | 0 m | | | |
| | | | 2 | Z | | 0 m | | • | |
| | 2 | | | | Affect Transf | lorm | | • | |
| | \mathbb{N} | | Owner | V | Vorld Space | | | × • | |
| | ۲ | | Influence | • | | 1.000 | | ۰ | |
| | 6 | | | | | | | | |







MOVE EMPTY OBJECT ON THE X AXIS

YouTube

https://youtube.com/shorts/WZY6mwxWOUk





SET MINIMUM Z=-6

| 8 | ¥ | Q | | | | | ¥ | |
|--------------|---------|----------------|---|------------------|------|-----|------|--|
| ł۲ | 🗐 Cubi | 2 | | | | | Ś | |
| â | Add Obj | ect Constraint | | | | | ¥ | |
| F | ∼t, | Limit Location | | | 0 | × × | **** | |
| | | Minimum X | | | 0 m | | | |
| 18 | | Y | | | 0 m | | | |
| S | | Z | ~ | | -6 m | | | |
| | | Maximum X | | | 0 m | | | |
| | | Y | | | 0 m | | | |
| | | z | ~ | | 0 m | | | |
| 4 | | | | Affect Transform | | | • | |
| \mathbb{N} | | Owner | W | orld Space | | ~ | • | |
| ۲ | | Influence | | 1.00 | 0 | 8 | • | |
| ø | | | | | | | | |
| ₽ | | | | | | | | |







MOVE EMPTY OBJECT ON THE X AXIS

YouTube

https://youtube.com/shorts/dkKfT1toocc





WE DID ALL THE EXERCISES FOR OBJECT EMPTY AND TYPE X LOCATION THERE ARE A LOT OF POSSIBILITIES







DO THIS EXERCISES YOURSELF





https://youtu.be/8H7uuEFbu2w

https://youtube.com/shorts/CAenWi7EG7Y





IN OUR PROJECTS WE USED DRIVERS TO ANIMATE THE TANK



https://youtu.be/_wUZc4KE7TI







CREATE A SIMILAR ANIMATION YOURSELF



https://youtu.be/biMHAqRdIdA



THANK YOU FOR YOUR ATTENTION



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