POWER OF AR AND VR

PREPARATION TO WORK

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JACEK KAWAŁEK

OUR MAIN PROGRAM WILL BE

BLENDER

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DURING THE IMPLEMENTATION OF THE PROJECT IT IS NECESSARY TO DETERMINE WHICH VERSION OF THE PROGRAM AND COMPONENTS WE WILL USE.

IT MAY BE THERE IF THE FILES WERE SAVEDIN ONE VERSION OF THE PROGRAMDO NOT OPEN IN ANOTHER VERSION.

IN THIS TRAINING, I WILL EXPLAIN, AMONG OTHER THINGS, HOW TO DEAL IN SUCH SITUATIONS.

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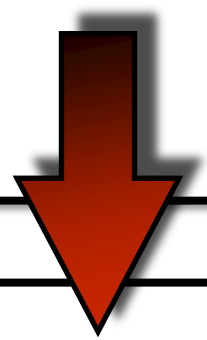
FROM THIS PAGE YOU CAN DOWNLOAD DIFFERENT VERSIONS OF THE PROGRAM

https://download.blender.org/release

Index of /release/

../	
Blender1.0/	11-Jul-2020 07:17
Blender1.60/	05-Jul-2020 16:22
Blender1.73/	20-Aug-2003 11:13
Blender1.80/	20-Aug-2003 11:13
Blender2.04/	20-Aug-2003 11:13
Blender2.26/	20-Aug-2003 11:13
Blender2.27/	20-Aug-2003 11:13



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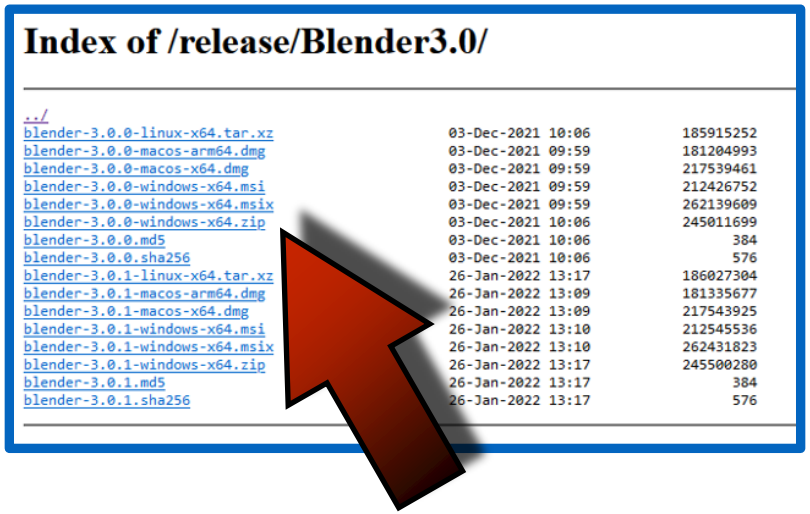
Blender3.6/	15-Oct-2024 08:13
Blender4.0/	05-Dec-2023 14:19
Blender4.1/	16-Apr-2024 08:42
Blender4.2/	15-Oct-2024 08:16

IN OUR TRAINING WE WILL USE BLENDER 3.0



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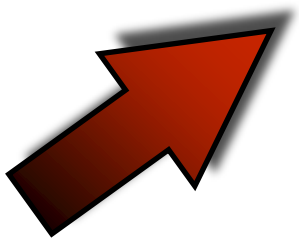
blender-3.0.1.md5	26-Jan-2022 13:17	384
blender-3.0.1.sha256	26-Jan-2022 13:17	576

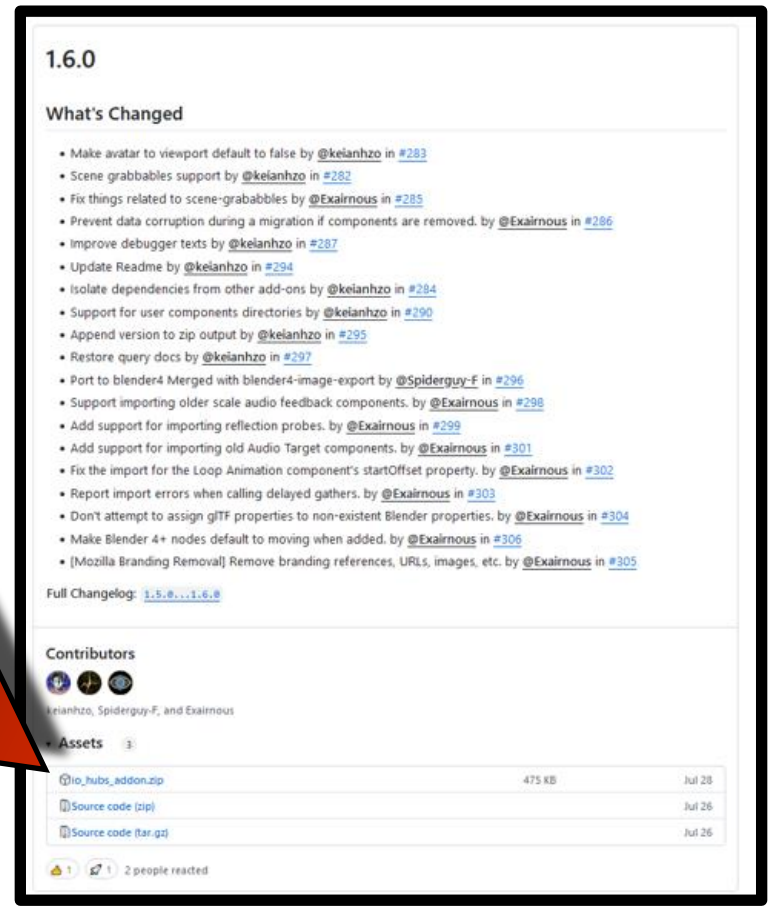
TO CREATE INTERACTIONSIN 3D GLASSES WE WILL USE THE APPROPRIATE ADD-ON FOR THIS VERSION OF BLENDER

Hubs Blender Addon 1.6.0



YOU CAN DOWNLOAD IT FROM THE WEBSITE

https://github.com/Hubs-Foundation/hubs-blender-exporter/releases



ADDITIONALLY, WE NEED TO COPY A PYTHON SCRIPT FILE INTO THE RIGHT PLACE AS A REGULAR TEXT FILE

moveable.py

WINDOWS PATH

C:\Users\...USER...\AppData\Roaming\Blender Foundation\Blender\3.0\scripts\addons\io_hubs_addon\components\definitions\moveable.py

APPLE PATH

/Users/...USER.../Library/Application Support/Blender/3.0/scripts/addons/io_hubs_addon/components/definitions/moveable.py

INSTEAD OF ...USER... ENTER YOUR SYSTEM ACCOUNT NAME

FILE

moveable.py

```
from bpy.props import BoolProperty
from ..hubs_component import HubsComponent
from ..types import NodeType, PanelType, Category
from ..utils import remove_component, add_component
from .networked_transform import NetworkedTransform


class Moveable(HubsComponent):
    _definition = {
        'name': 'moveable',
        'display_name': 'Moveable',
        'category': Category.OBJECT,
        'node_type': NodeType.NODE,
        'panel_type': [PanelType.OBJECT],
        'icon': 'VIEW_PAN',
        'deps': ['rigidbody', 'networked-transform'],
        'version': (1, 0, 1)
    }

    cursor: BoolProperty(
        name="By Cursor", description="Can be grabbed by a cursor", default=True)

    hand: BoolProperty(
        name="By Hand", description="Can be grabbed by VR hands", default=True)

    @classmethod
    def init(cls, obj):
        obj.hubs_component_list.items.get('rigidbody').isDependency = True

    def migrate(self, migration_type, panel_type, instance_version, host, migration_report, ob=None):
        migration_occurred = False
        if instance_version <= (1, 0, 0):
            migration_occurred = True

            # This was a component that has disappeared but it was usually added together with grababble so we try to remove those instances.
            if "capturable" in host.hubs_component_list.items:
                remove_component(host, "capturable")

            if "networked-object-properties" in host.hubs_component_list.items:
                remove_component(host, "networked-object-properties")

            add_component(host, NetworkedTransform.get_name())

        return migration_occurred
```

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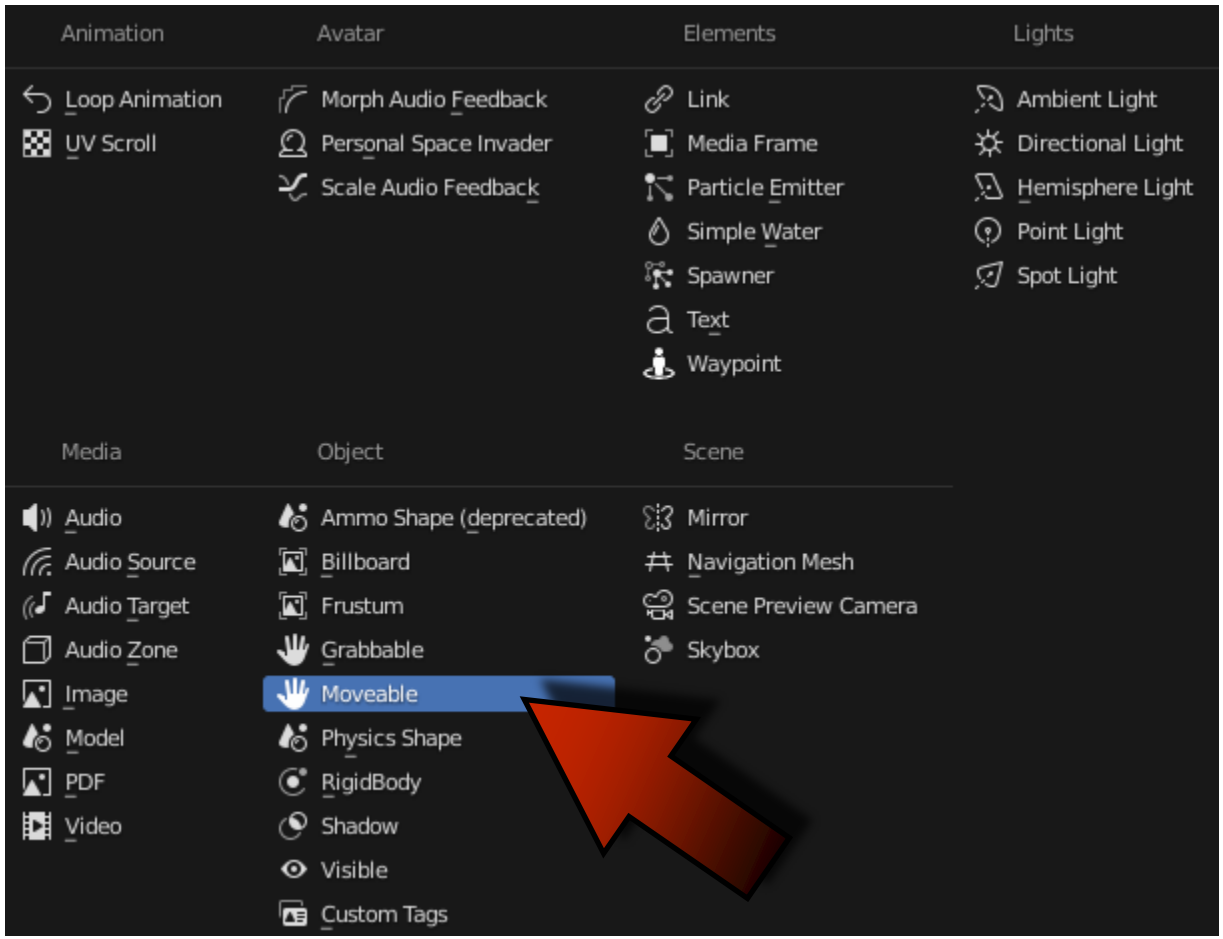
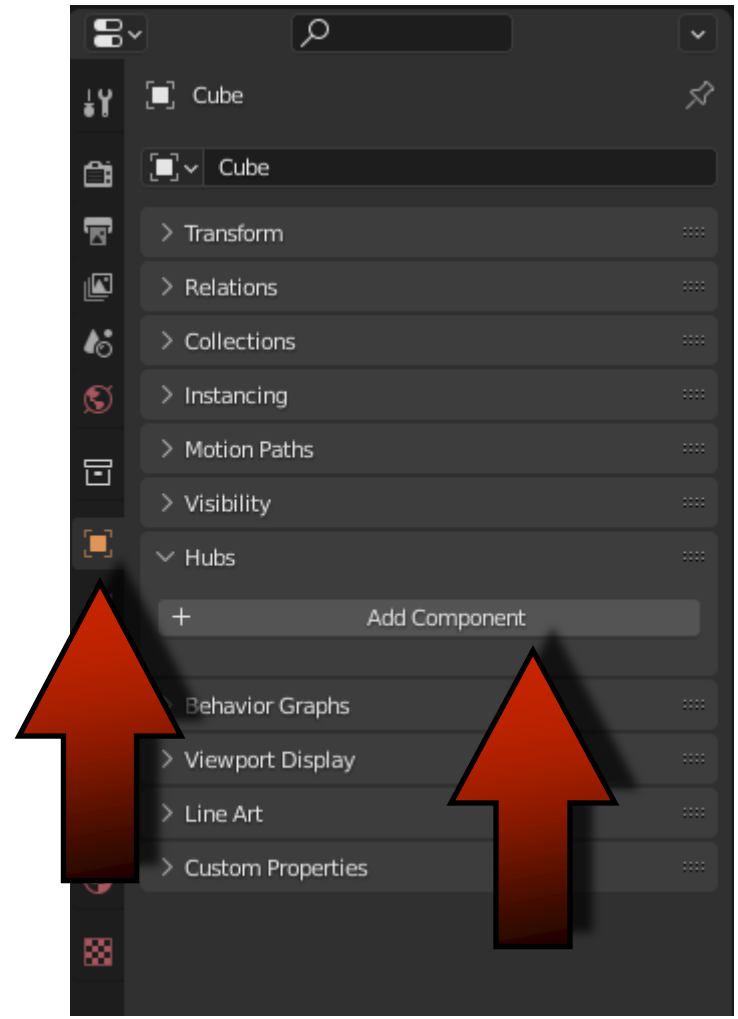
ADD-ON CORRECTLY INSTALLED





PREPARATION TO WORK

WE INSTALL ITAS OTHER ADD-ONS IN BLENDER

WE WILL GIVE EXAMPLES IN THE NEXT EXERCISES

ADDITIONALLY, I WILL PRESENT THE BASICS OF UPBGE

BLENDER WITH A GAME ENGINE

https://upbge.org

RUN THE BLENDER PROGRAM

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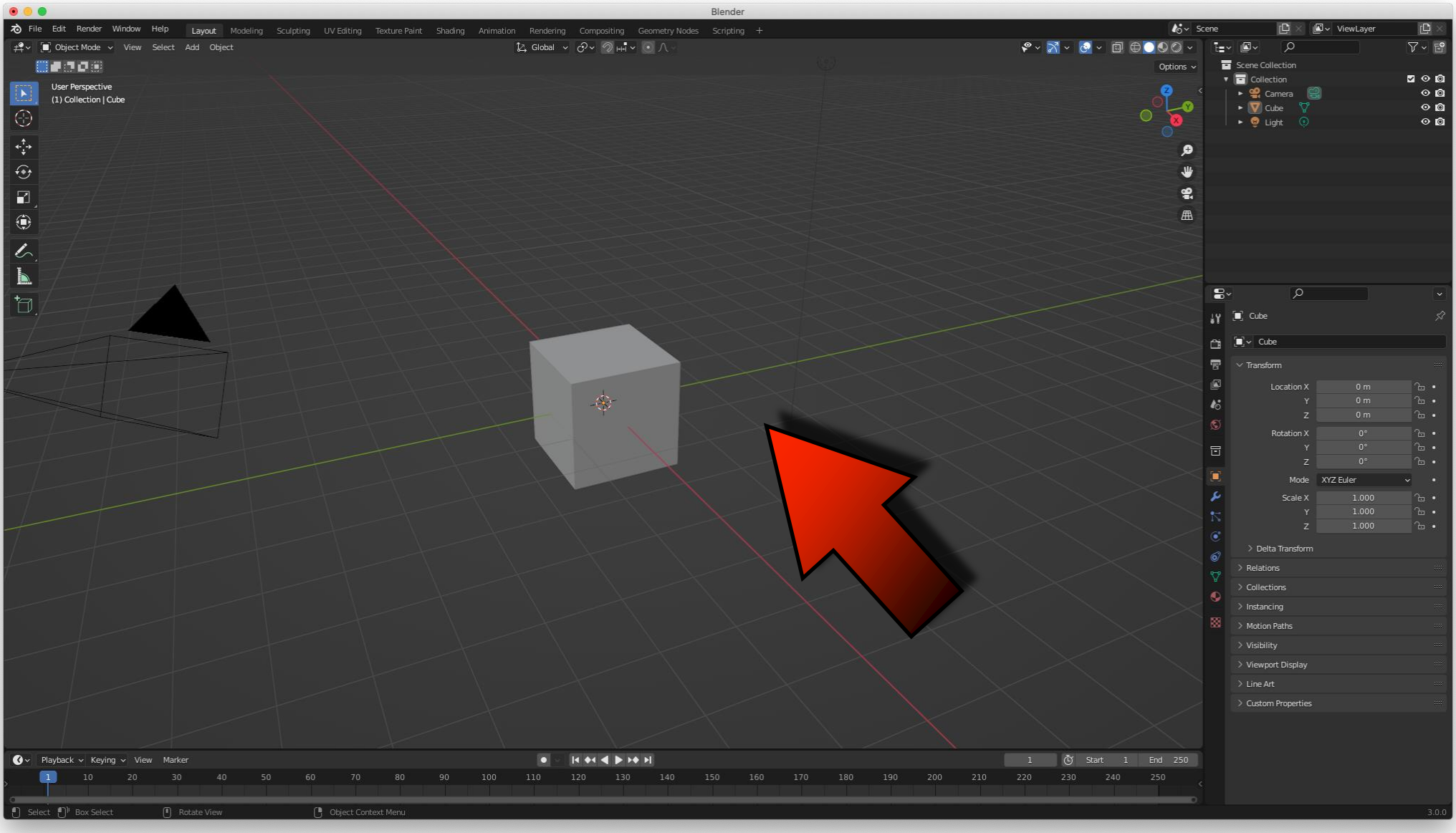
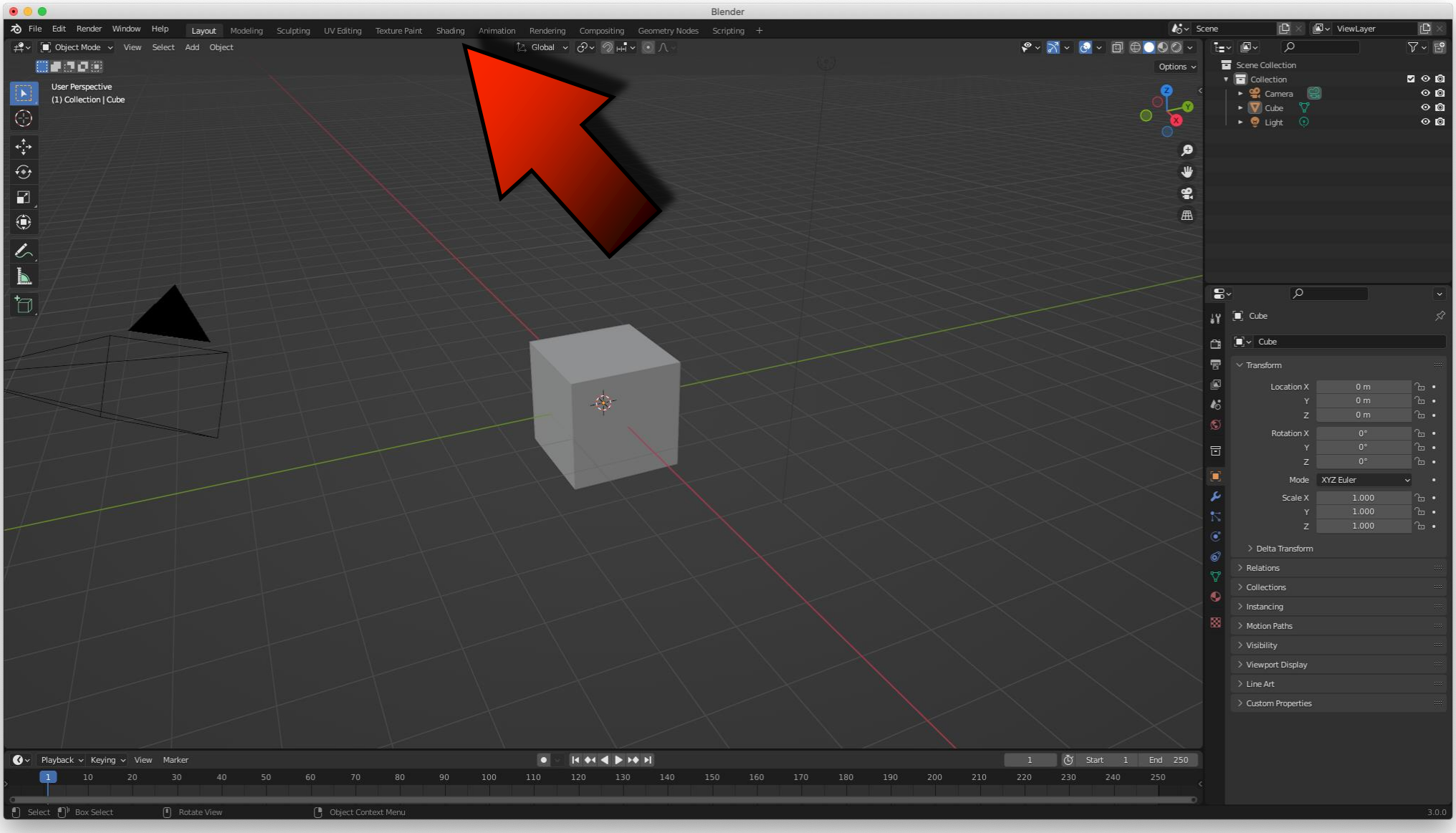
3D VIEW



PREPARATION TO WORK

POWER OF AR AND VR

MENU



PREPARATION TO WORK

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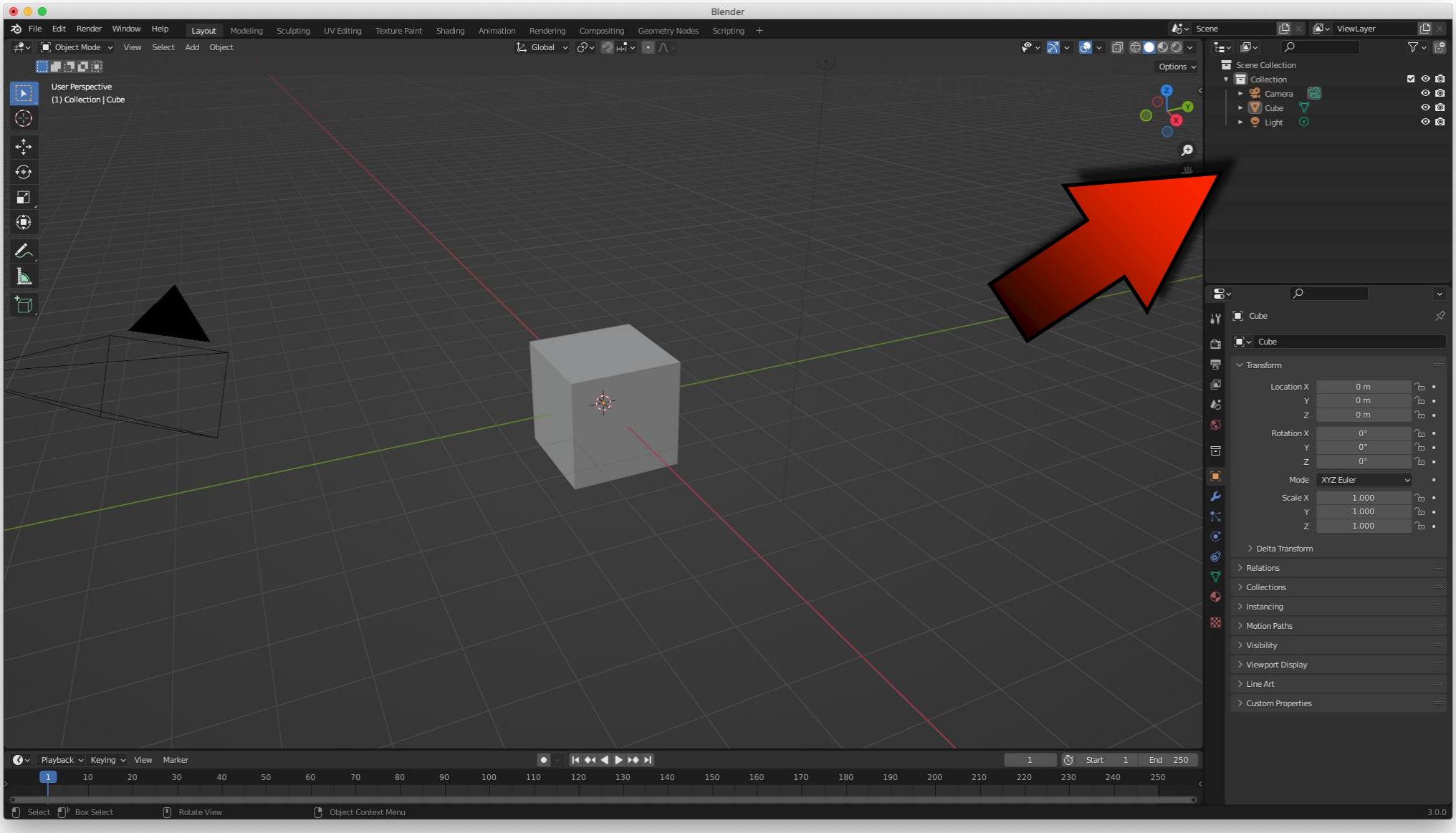
OUTLINER



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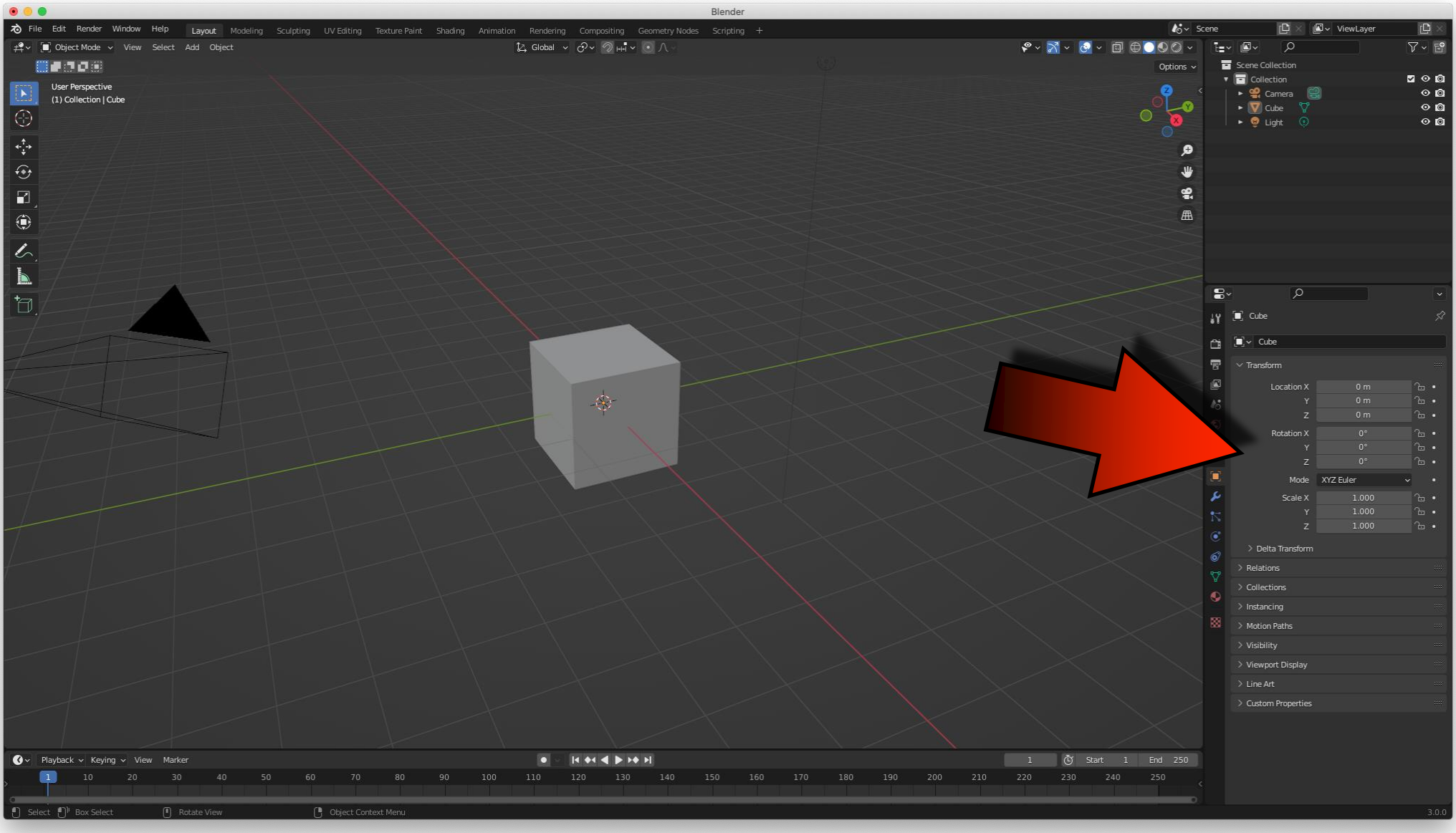
PROPERTIES



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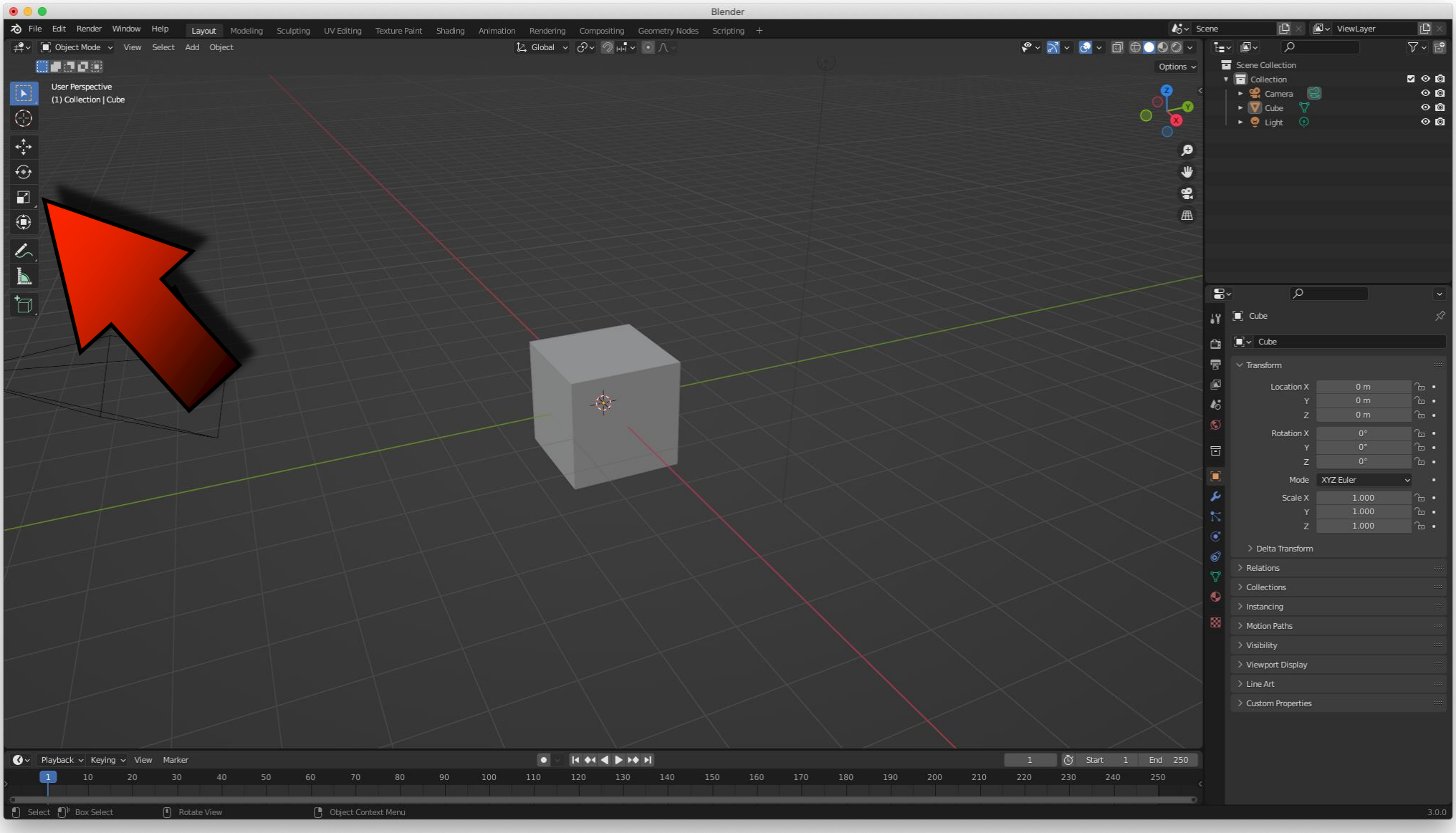
TOOLS



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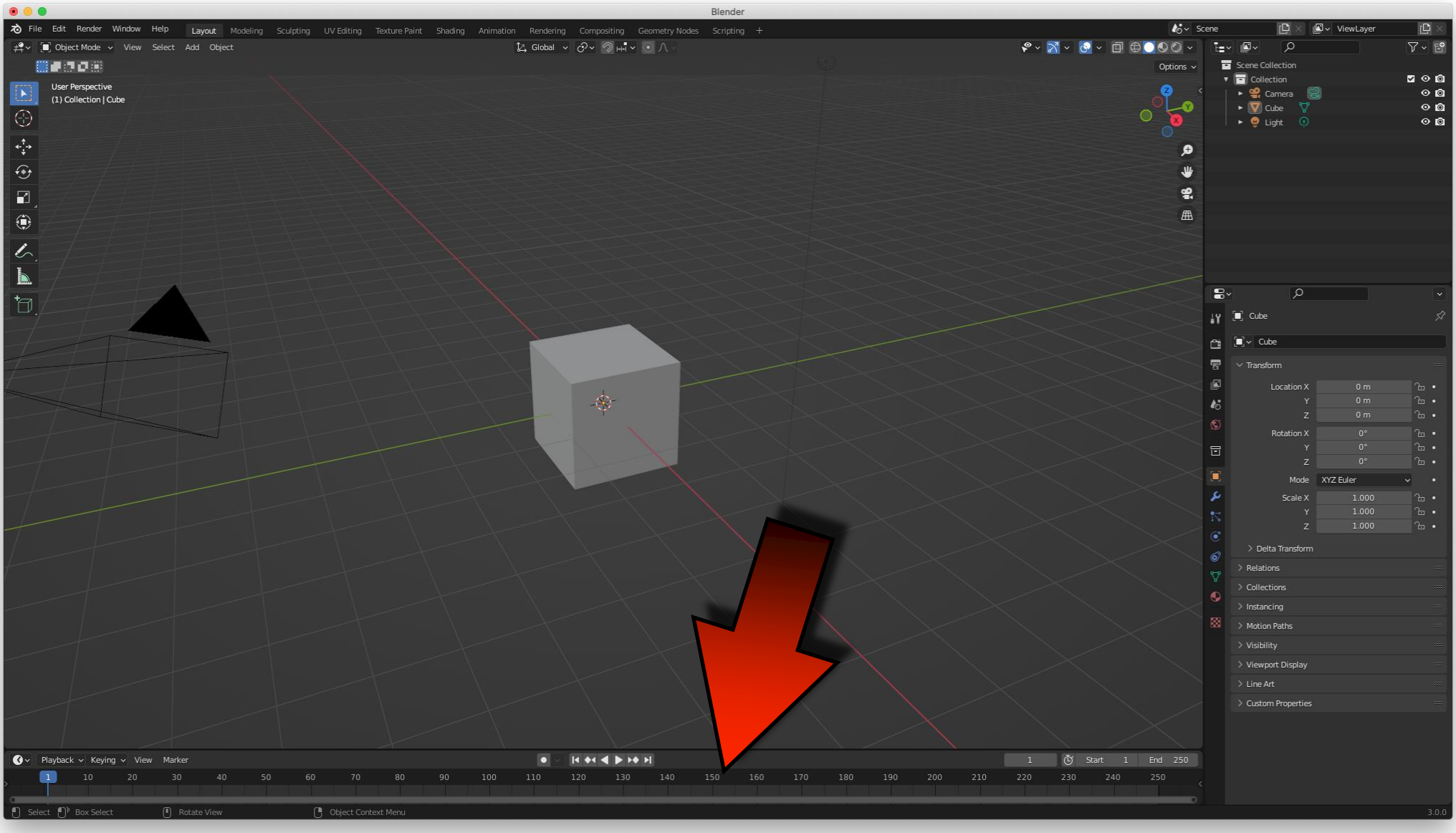
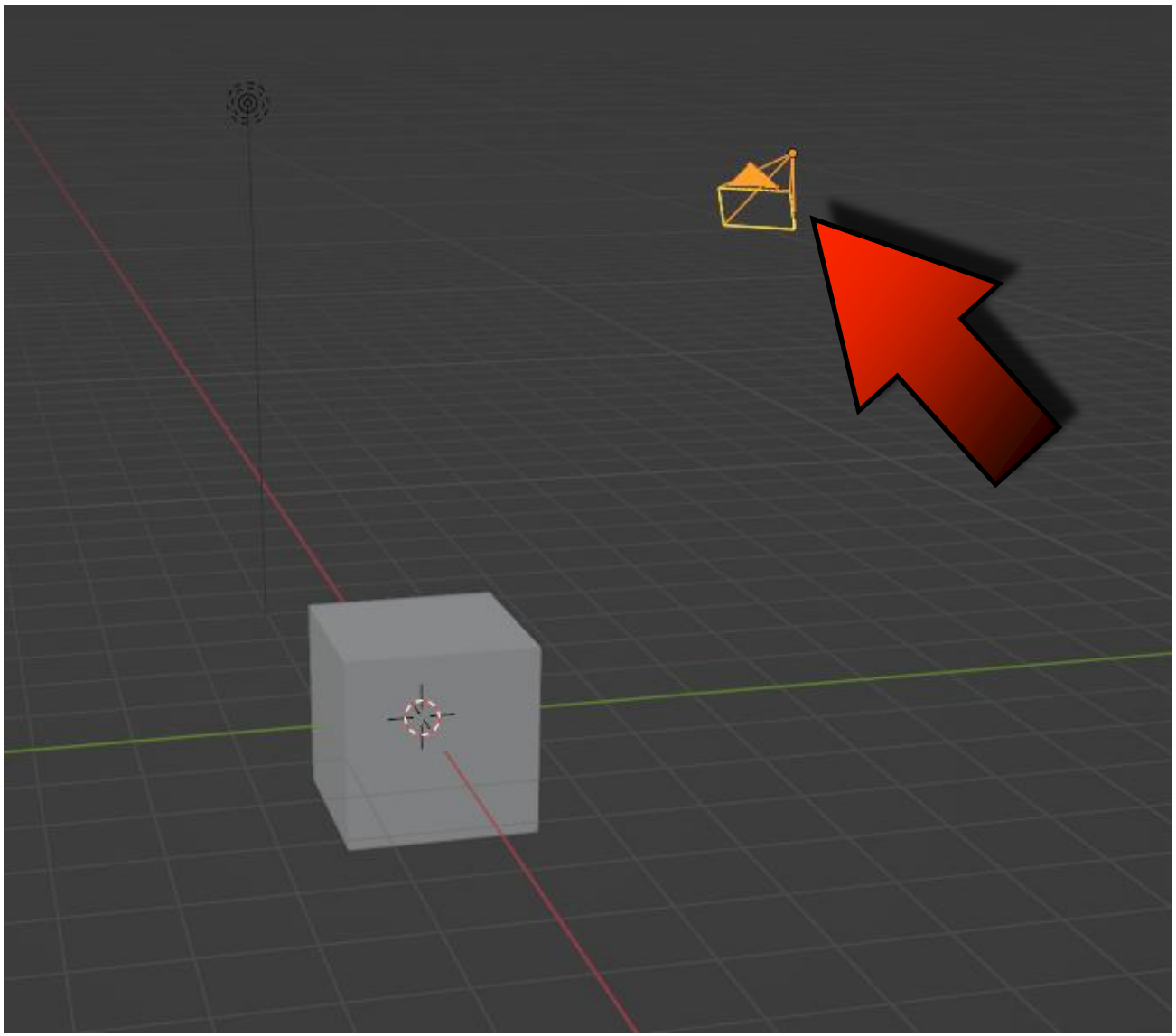
TIMELINE

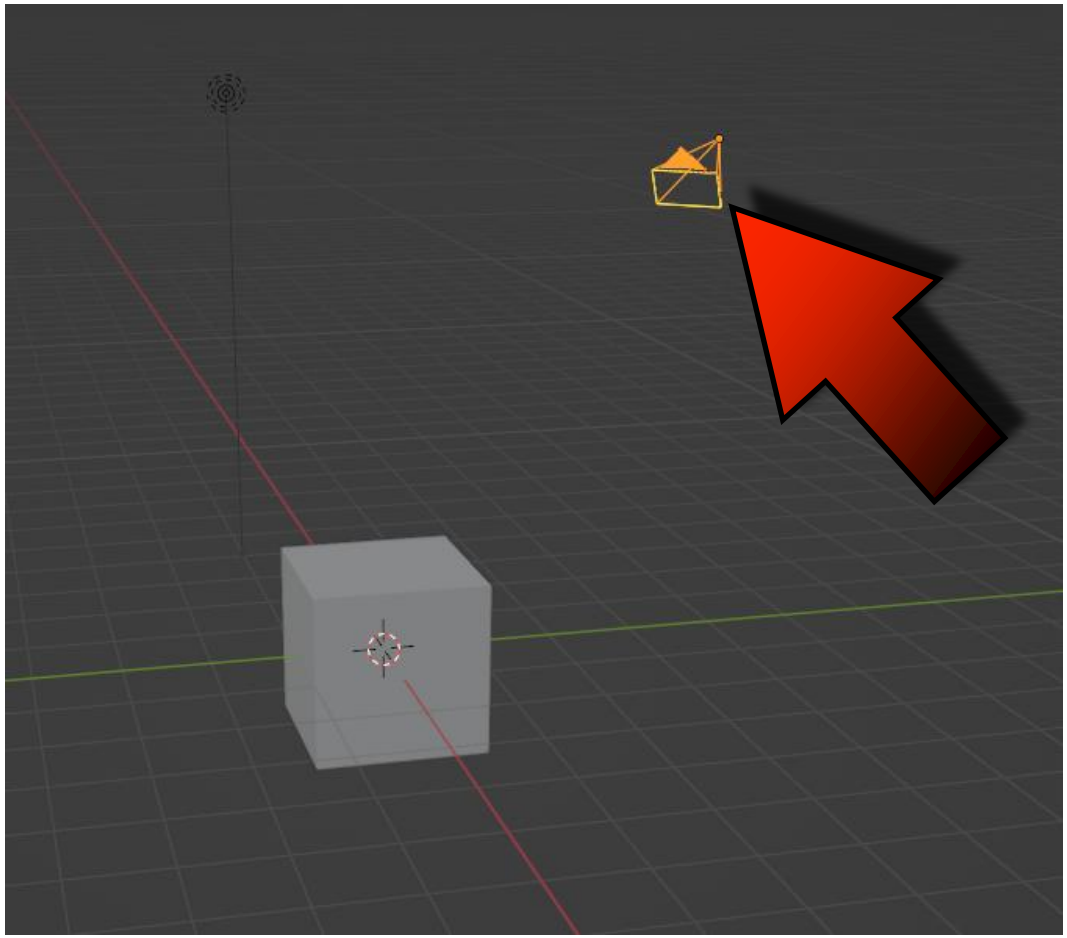


PREPARATION TO WORK

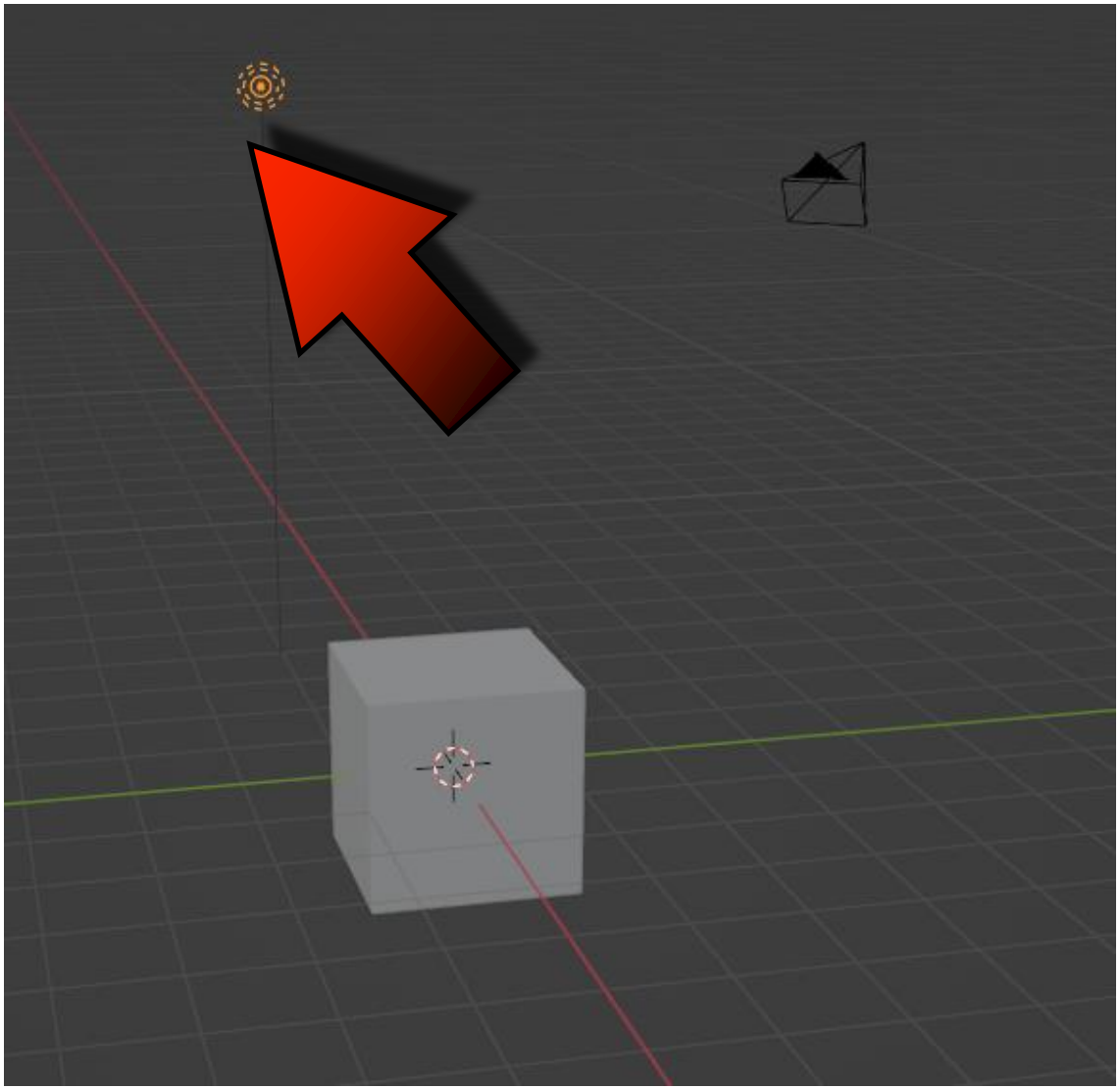
CAMERA



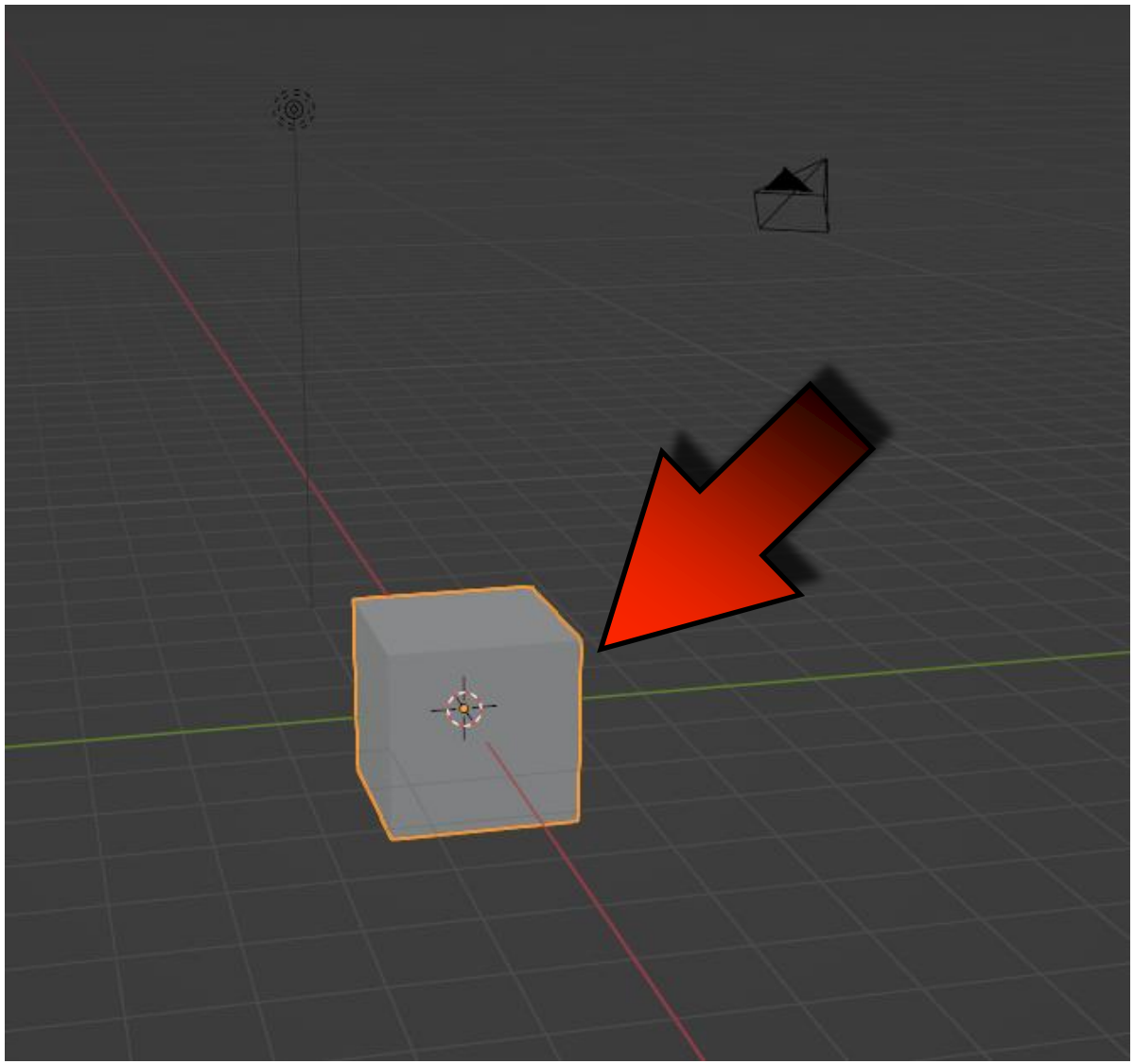
AFTER CLICKING WITH THE LEFT MOUSE BUTTON, WE SELECT AN OBJECT.



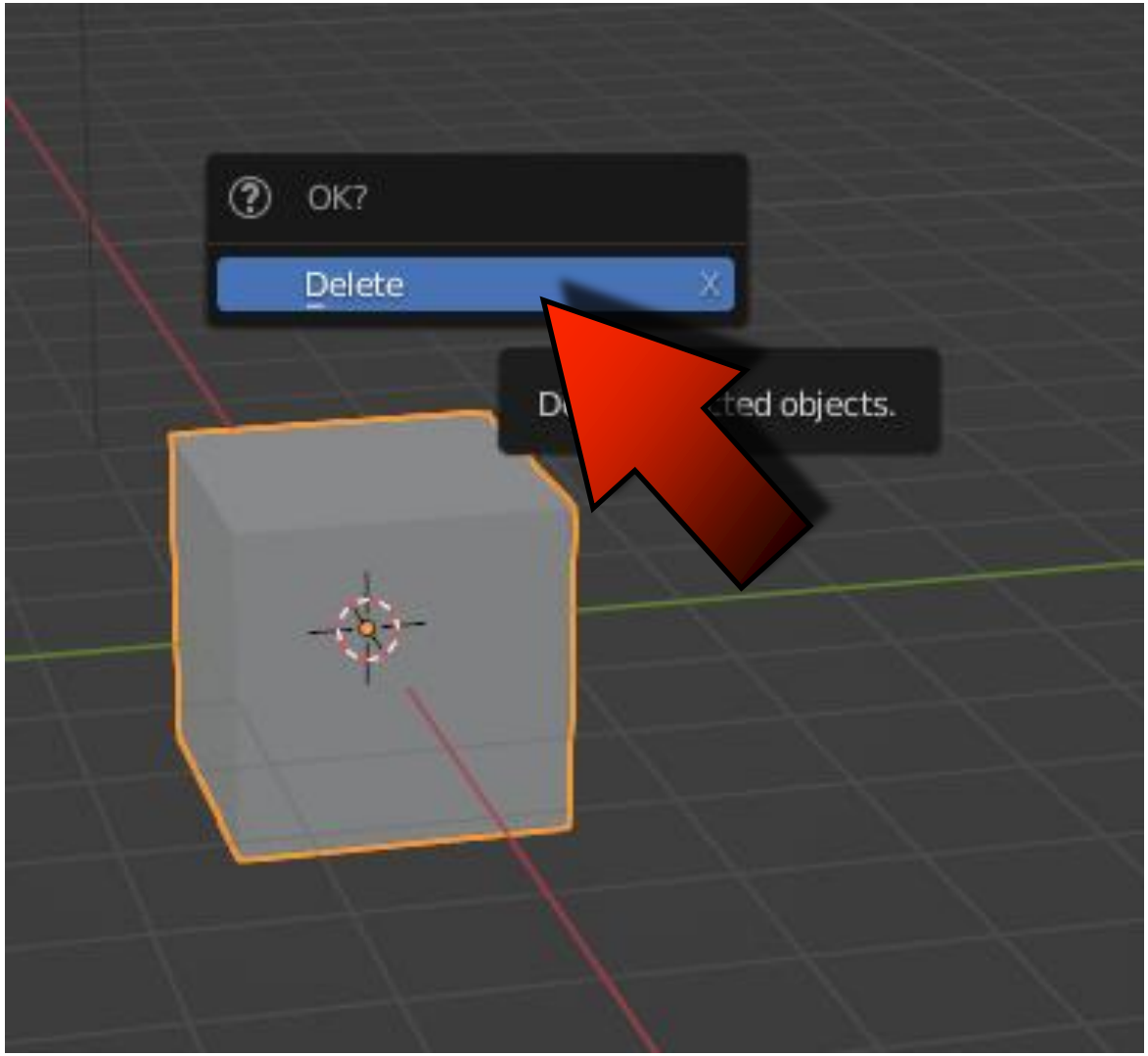
LIGHT



3D OBJECT - CUBE

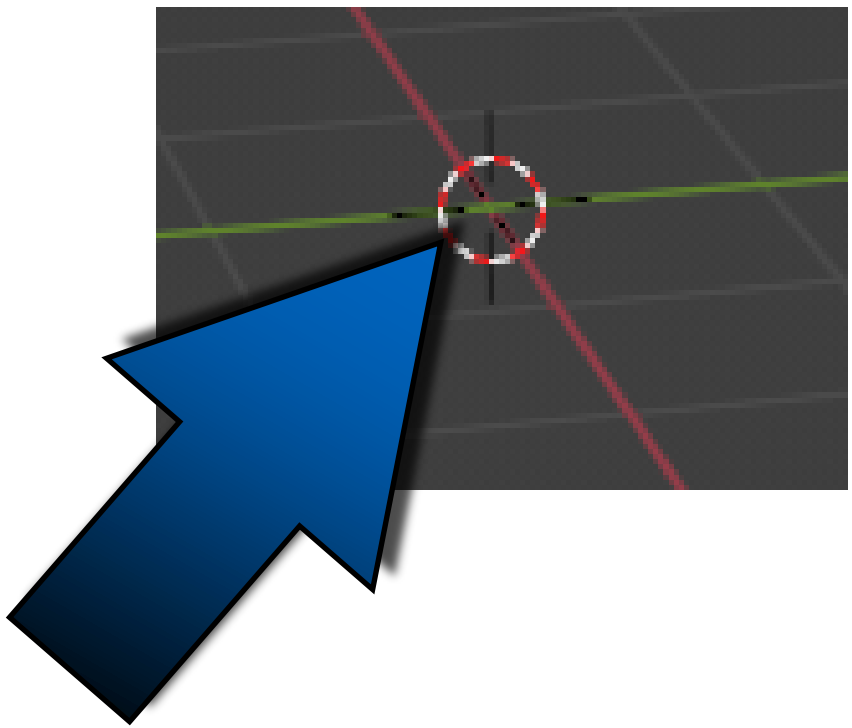


X KEY – DELETE OBJECTS



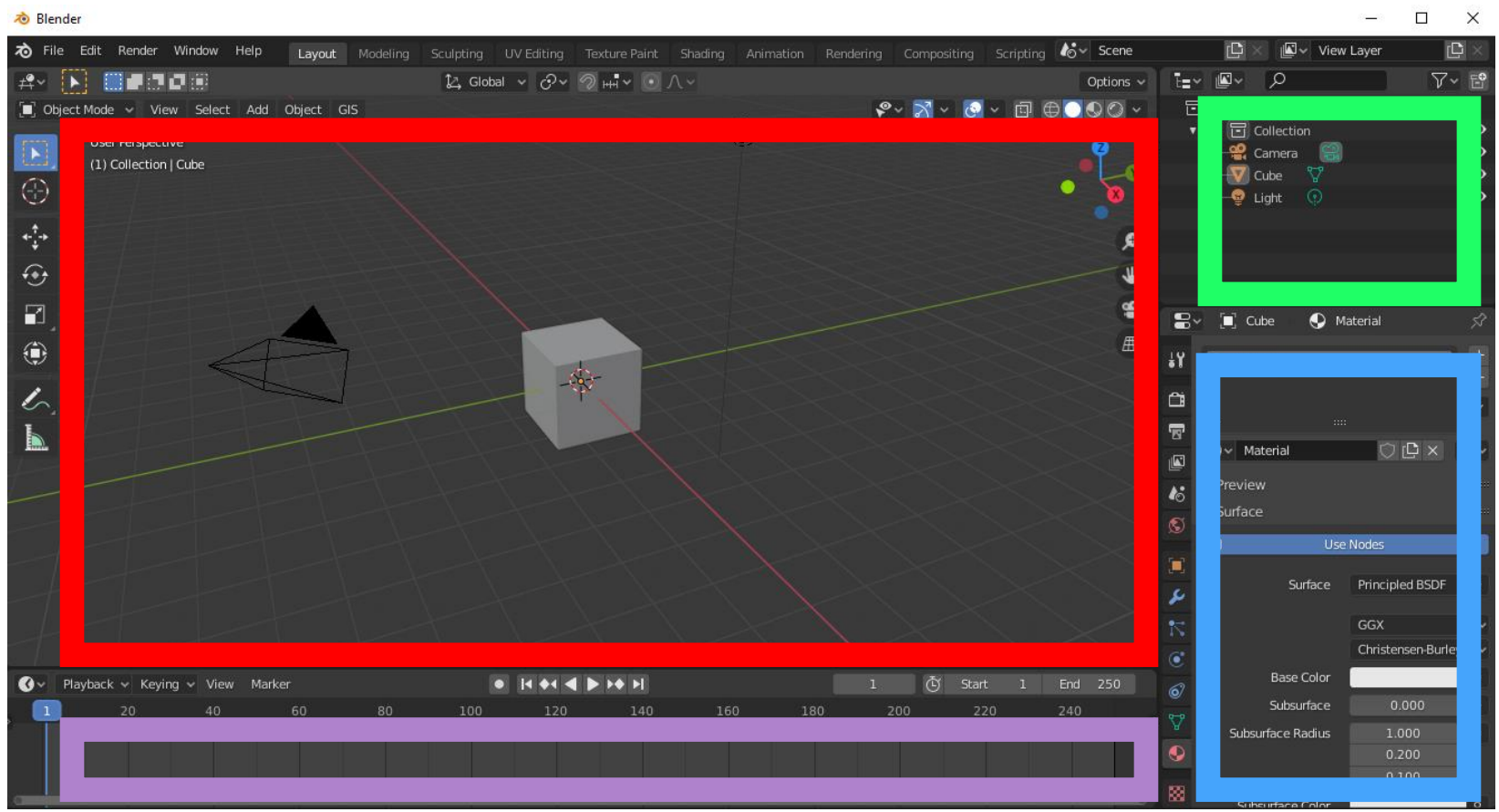
3D CURSOR

DEFINES WHERE THE NEW OBJECT WILL BE INSERT

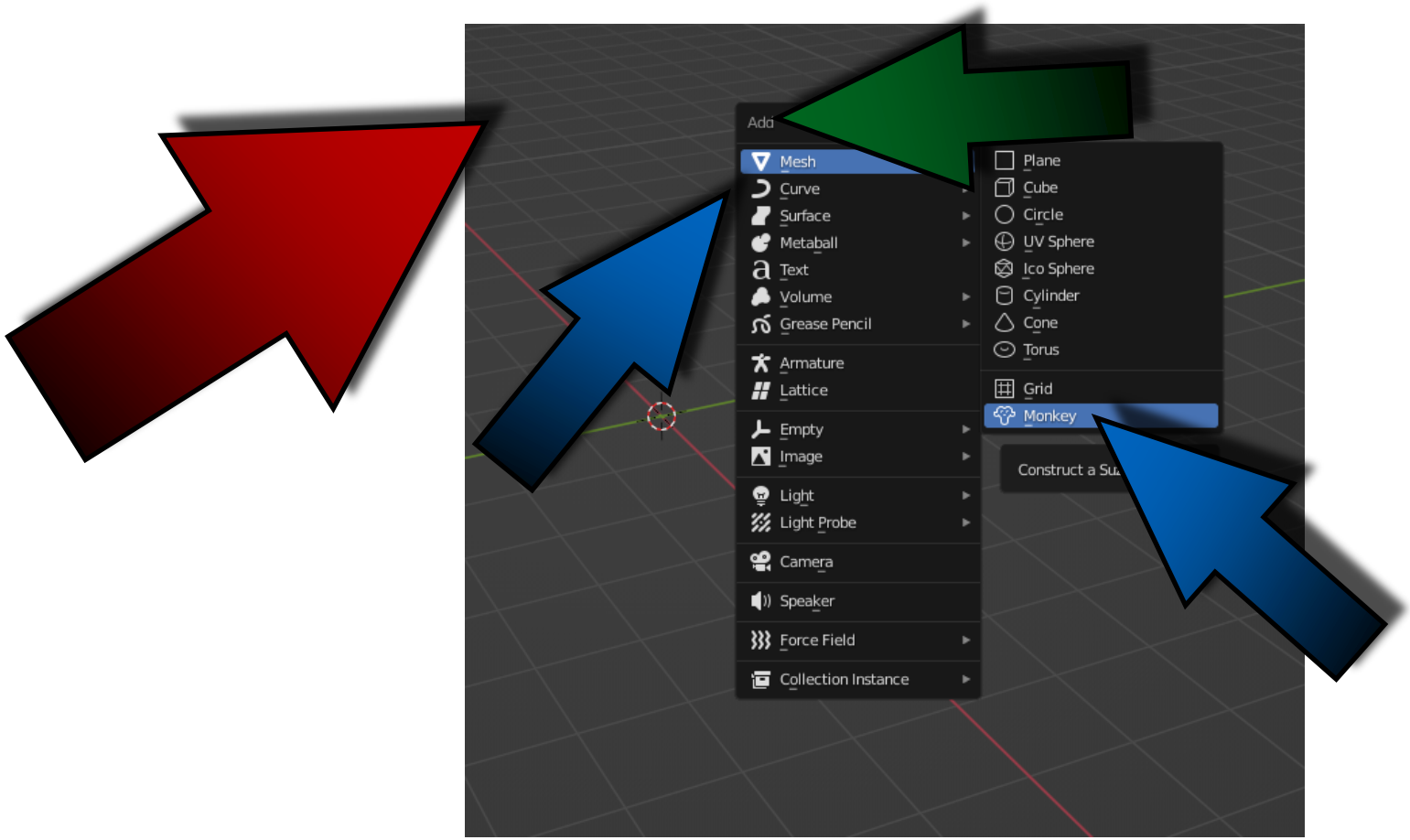


NOW IT IS IN THE CENTEROF THE COORDINATE SYSTEM

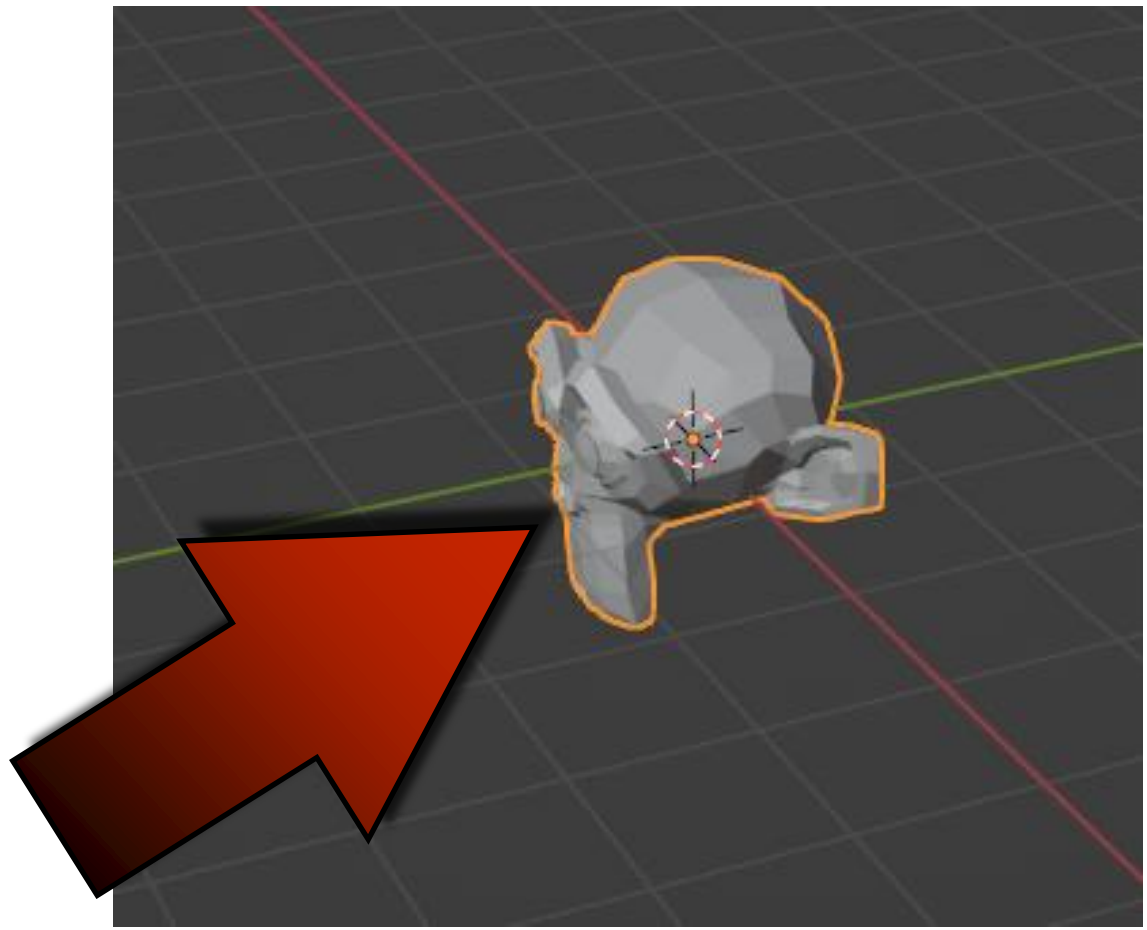
PAY ATTENTION TO
THE WINDOW THAT YOUR MOUSE CURSOR IS OVER.
IT DEPENDS ON
WHICH KEYBOARD SHORTCUTS WORK.



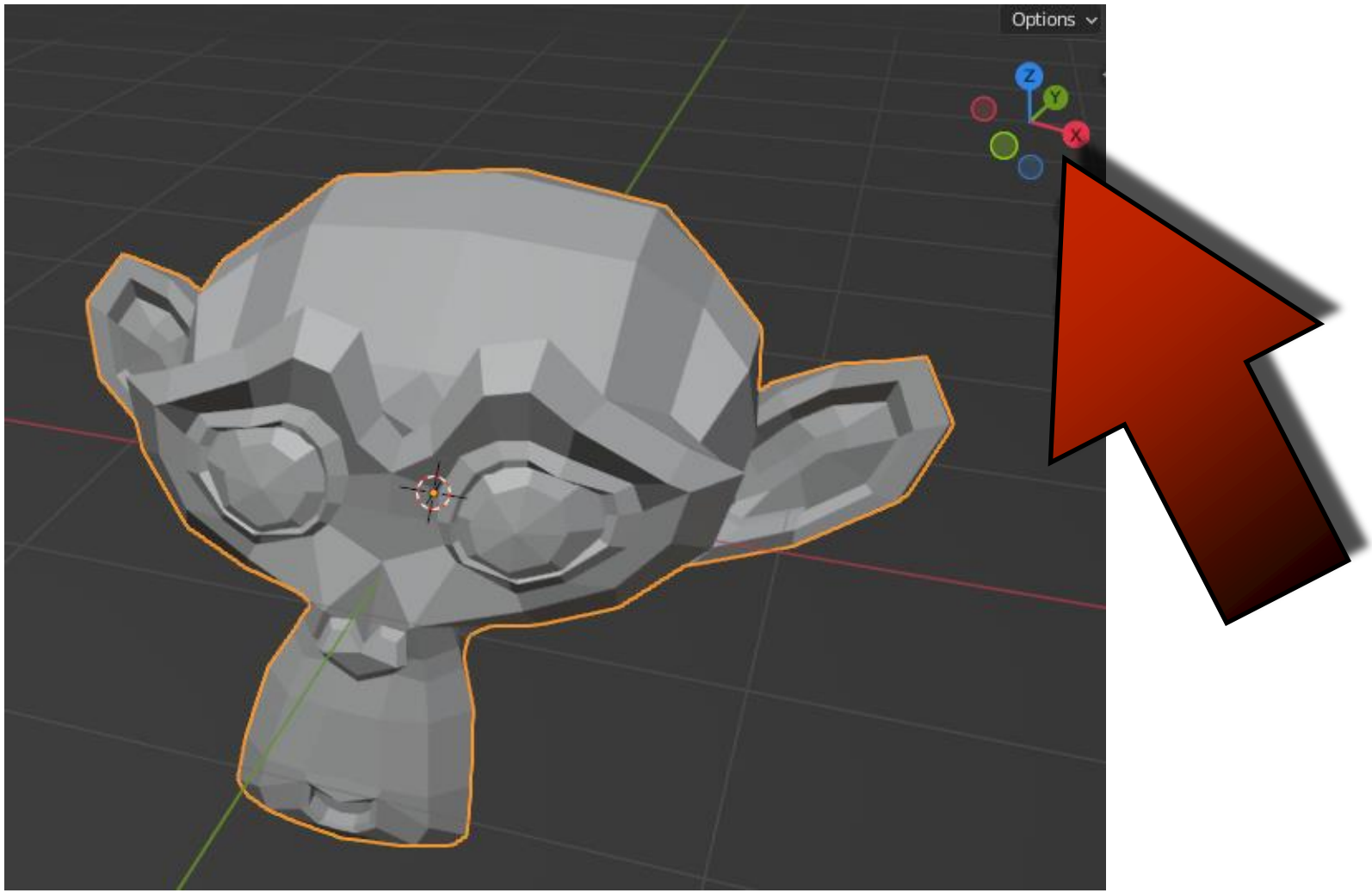
MOVE YOUR MOUSE OVER THE 3D VIEW WINDOW AND PRESS SHIFT+A (ADD) AND SELECT A MESH/MONEY



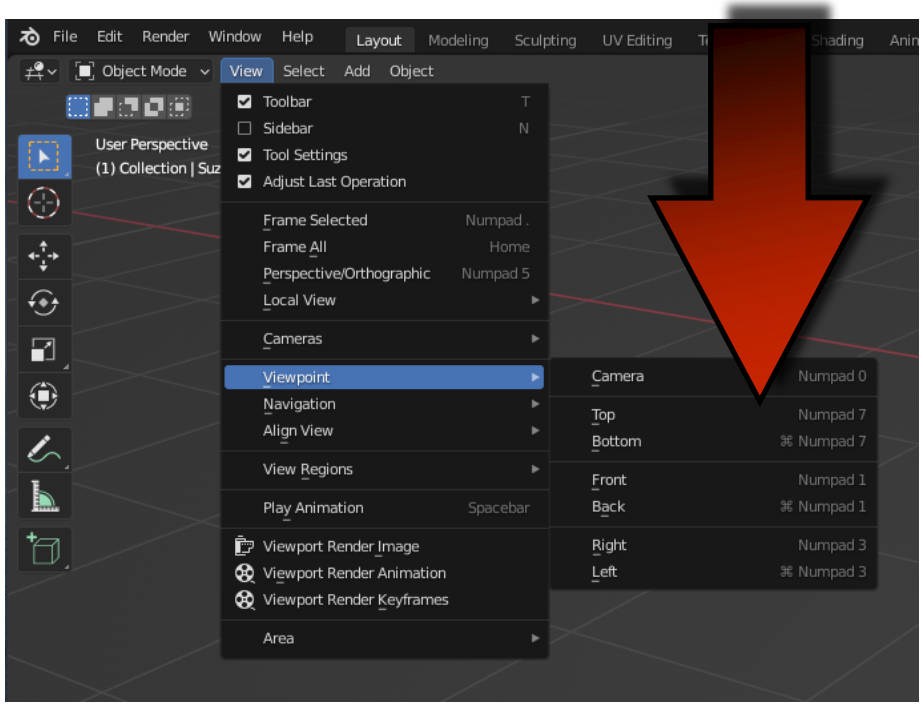
YOU WILL SEE A NEW 3D OBJECT



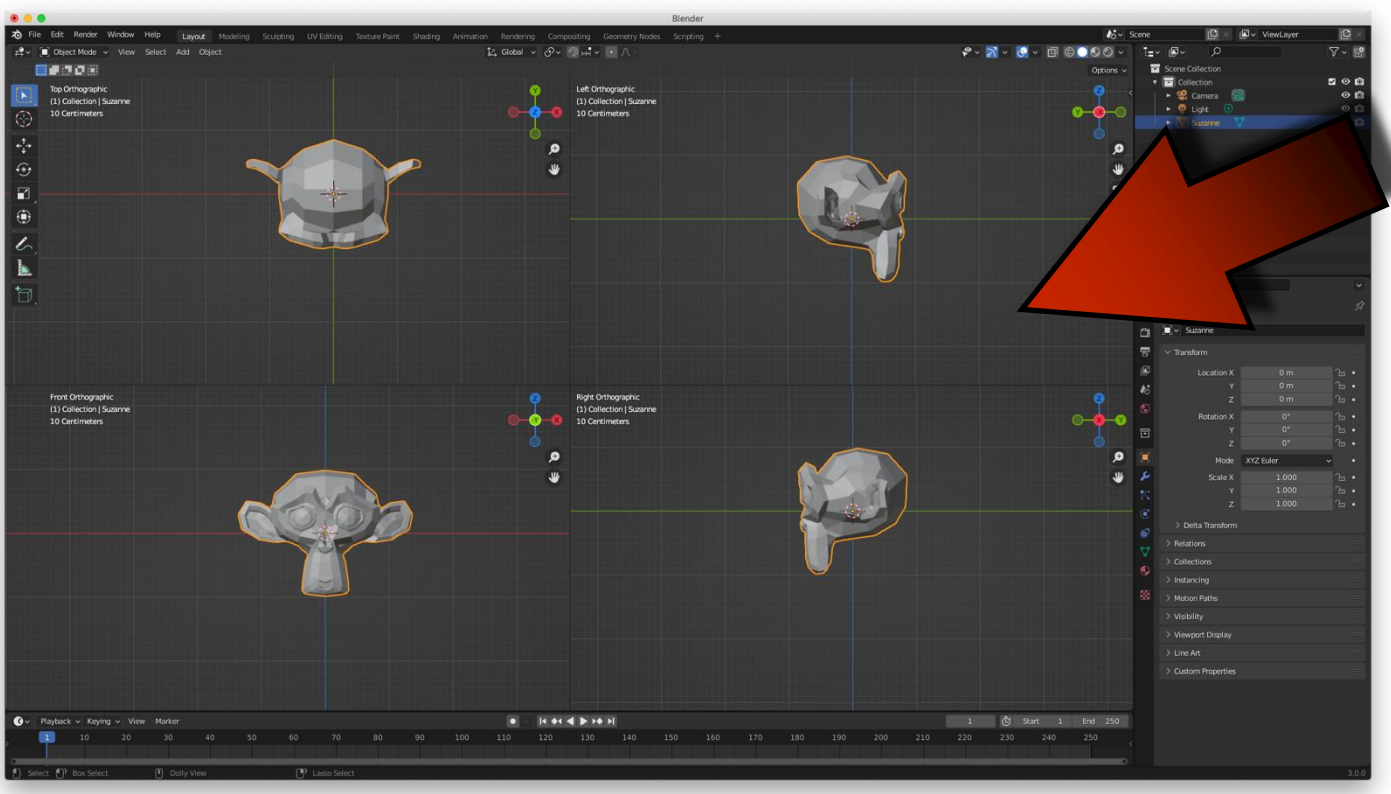
WITH GIZMO YOU CAN CHANGE THE VIEW



IN THE BLENDER PROGRAM THE SAME OPERATION CAN BE PERFORMED IN MANY WAYS EVERYONE CAN CHOOSE THE ONE THAT SUITS THEM BEST.



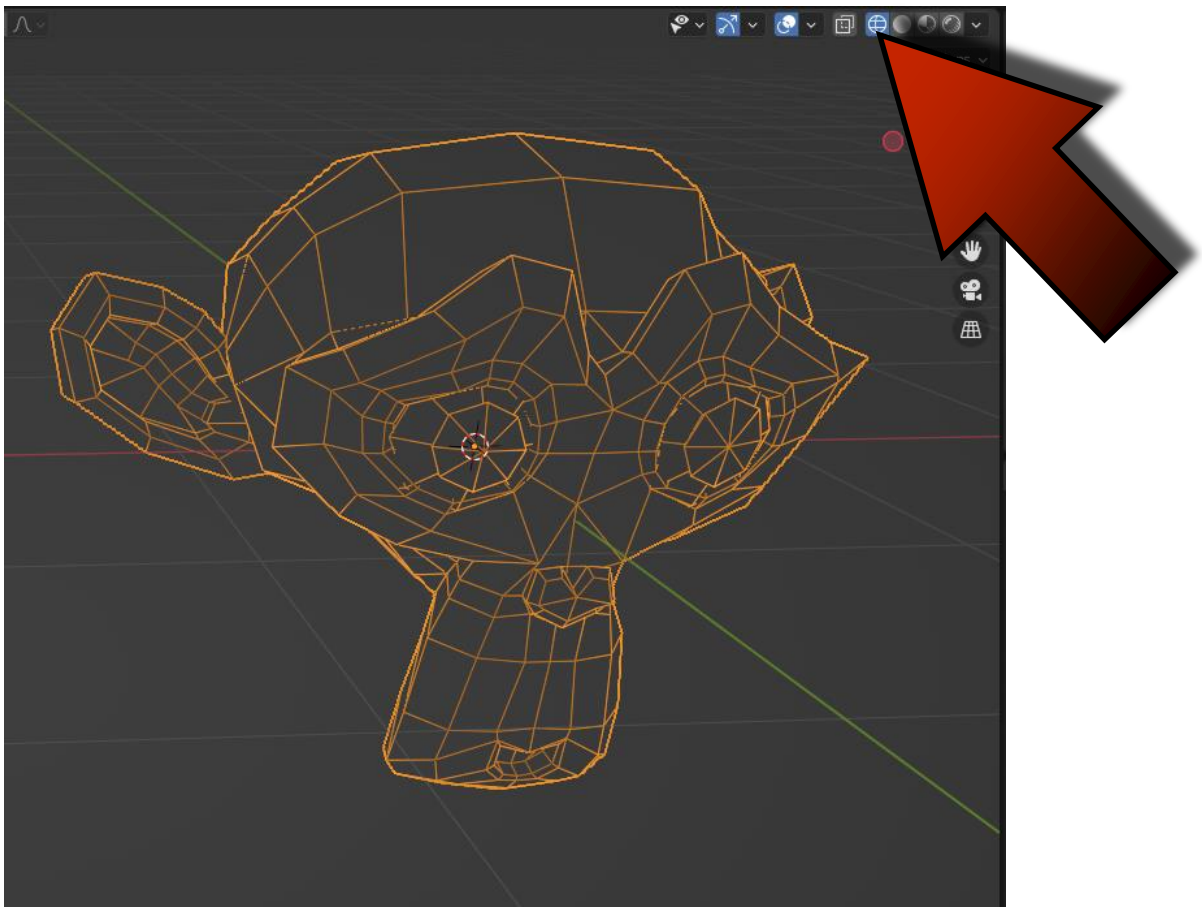
USING KEYBOARD SHORTCUTS WILL MUCH SPEED UP YOUR WORK



CRTL+ALT+Q

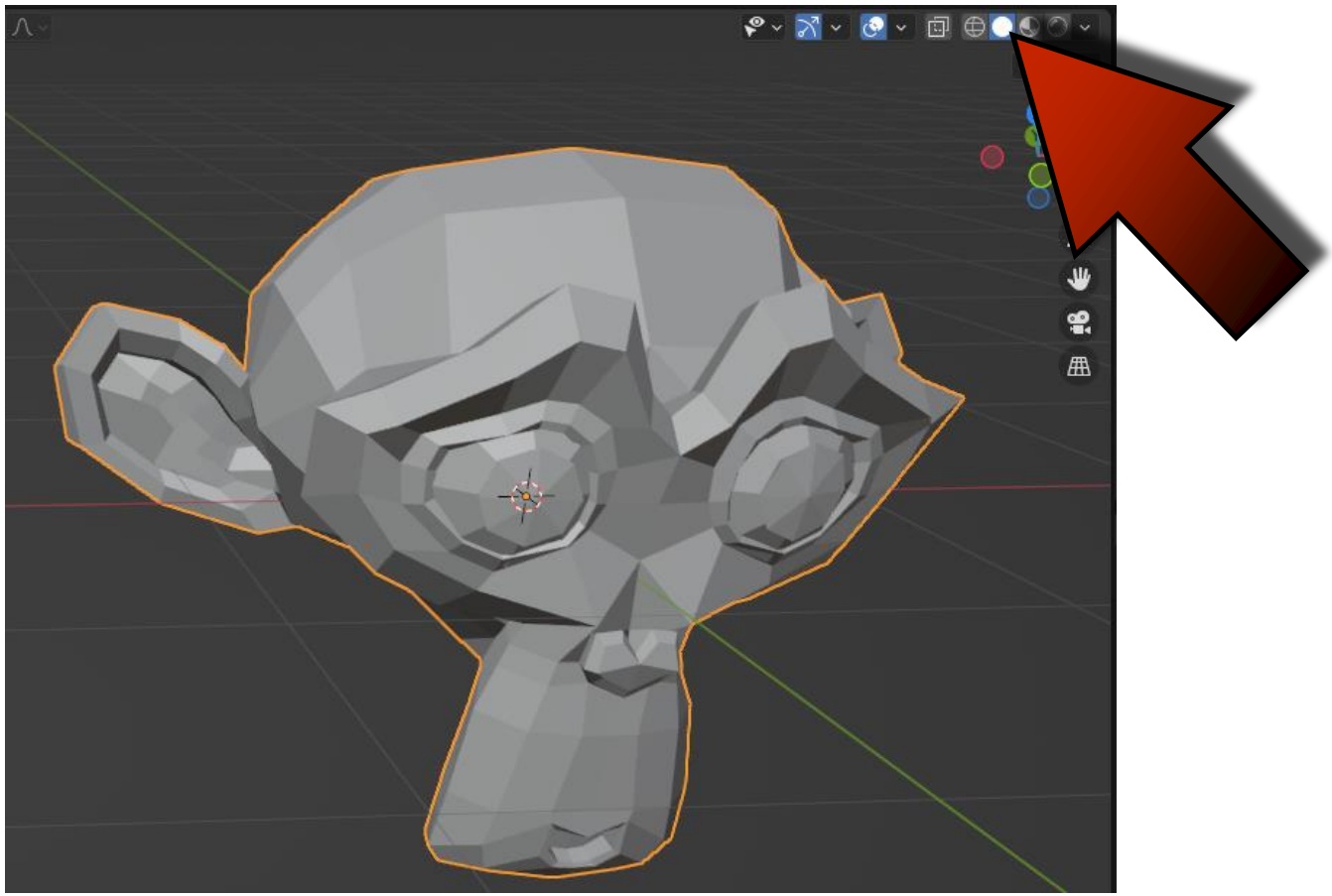
METHODS OF DISPLAYING OBJECTS

WIREFRAME



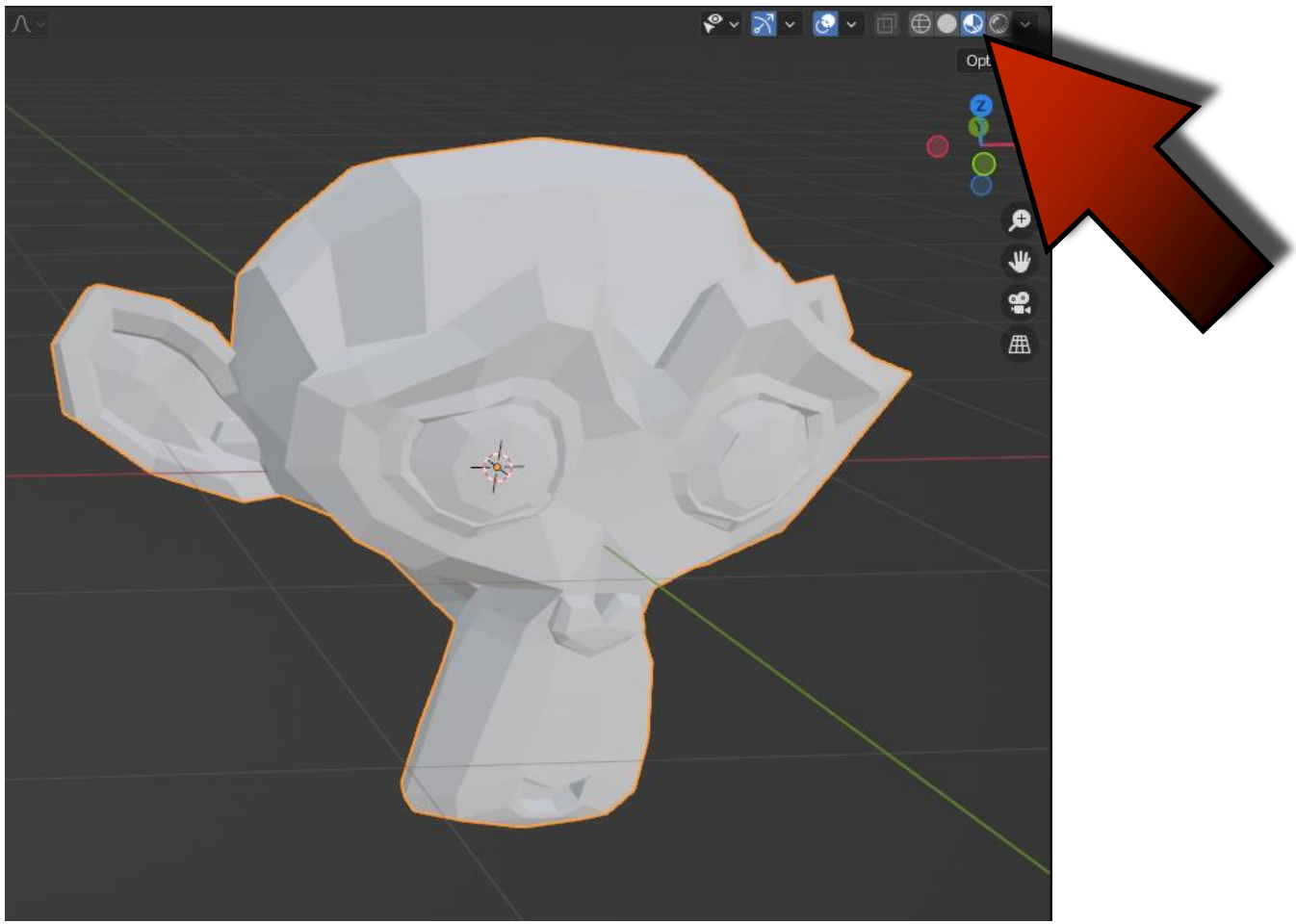
METHODS OF DISPLAYING OBJECTS

SOLID



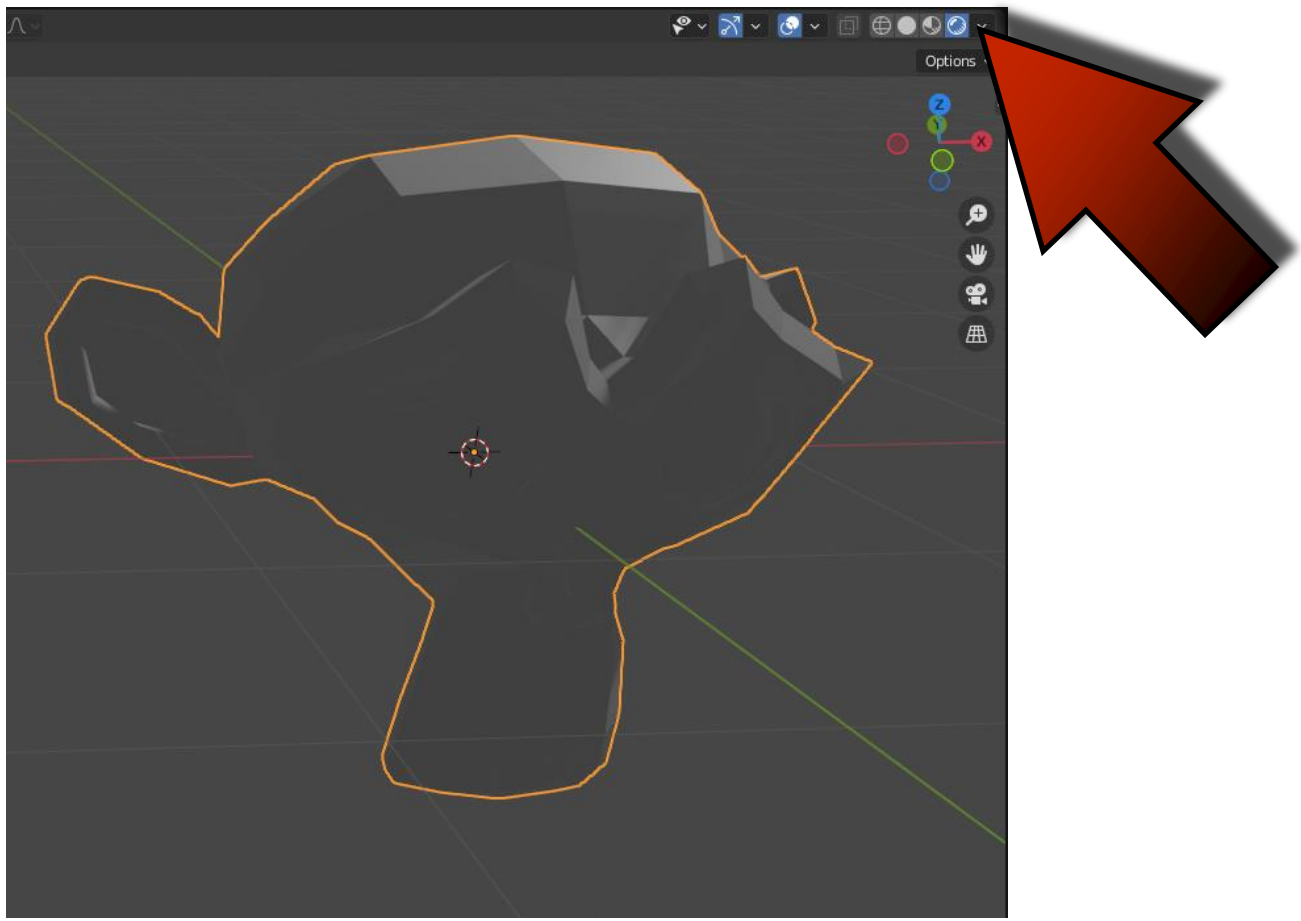
METHODS OF DISPLAYING OBJECTS

MATERIAL



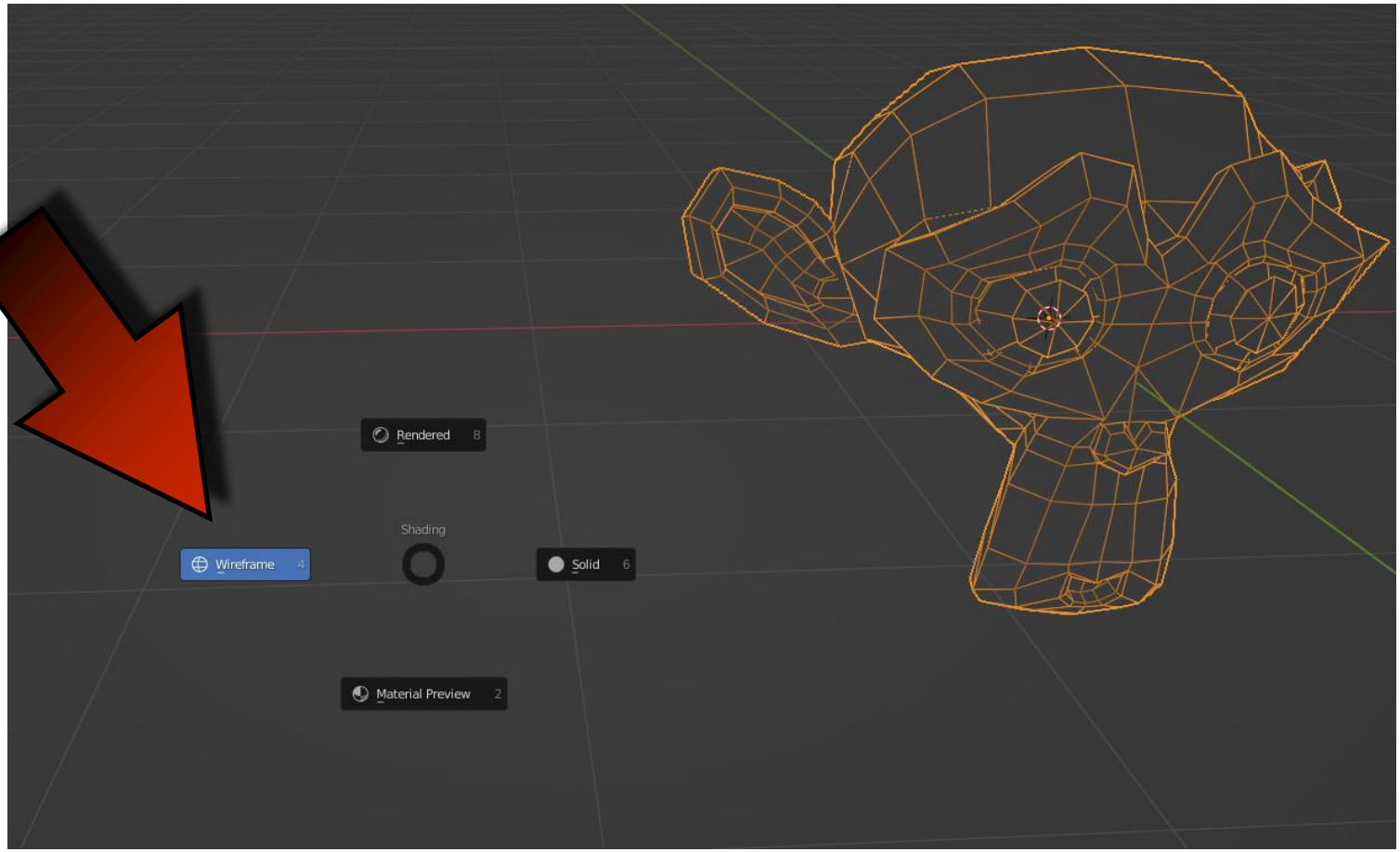
METHODS OF DISPLAYING OBJECTS

RENDER



Z KEY

GIVES THE SAME POSSIBILITIES



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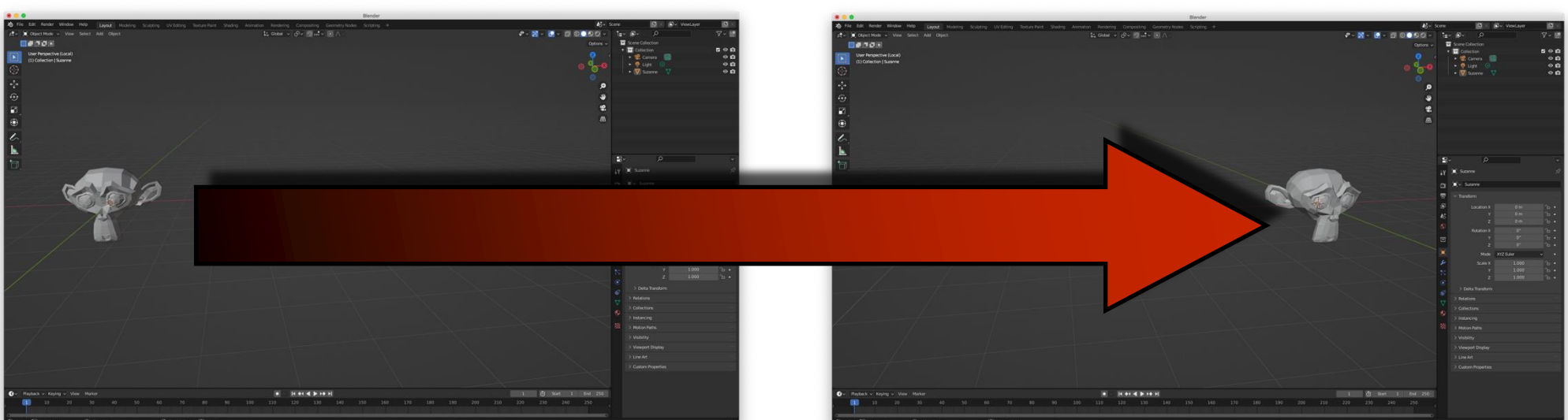
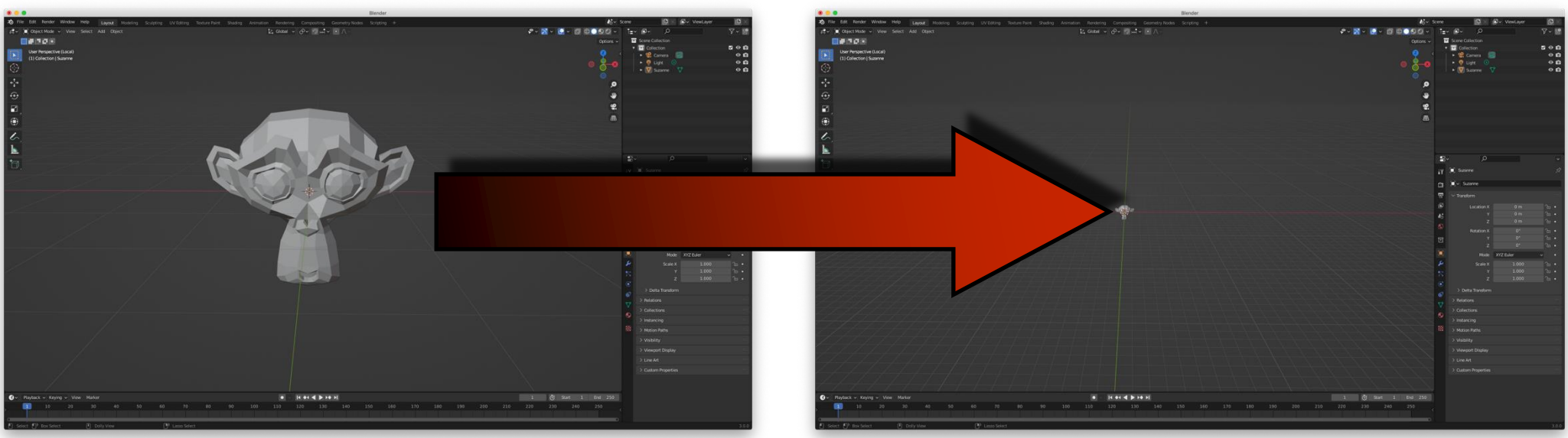
ON A PC COMPUTER, PRESS SHIFT AND MOVE THE MOUSE WHEEL THEN MOVE THE MOUSE.

ON AN APPLE COMPUTER, PRESS SHIFT AND MOVE YOUR FINGER OVER THE MOUSE.



PREPARATION TO WORK

DO THE SAMEWITH CTRL ON PC AND WITH CMD ON APPLE



PRESS AND RELEASE THE G (GRAB) KEY AND ONLY MOVE YOUR MOUSE.

YOU CAN CHANGE THE POSITION OF AN OBJECT

A MOUSE CLICK CONFIRMS THE POSITIONAND THE ESC KEY CANCELS

PRESS AND RELEASE THE R (ROTATE) KEY AND ONLY MOVE YOUR MOUSE.

YOU CAN CHANGE THE ROTATION OF AN OBJECT

A MOUSE CLICK CONFIRMS THE POSITIONAND
THE ESC KEY CANCELS

PRESS AND RELEASE THE S (SCALE) KEY AND ONLY MOVE YOUR MOUSE.

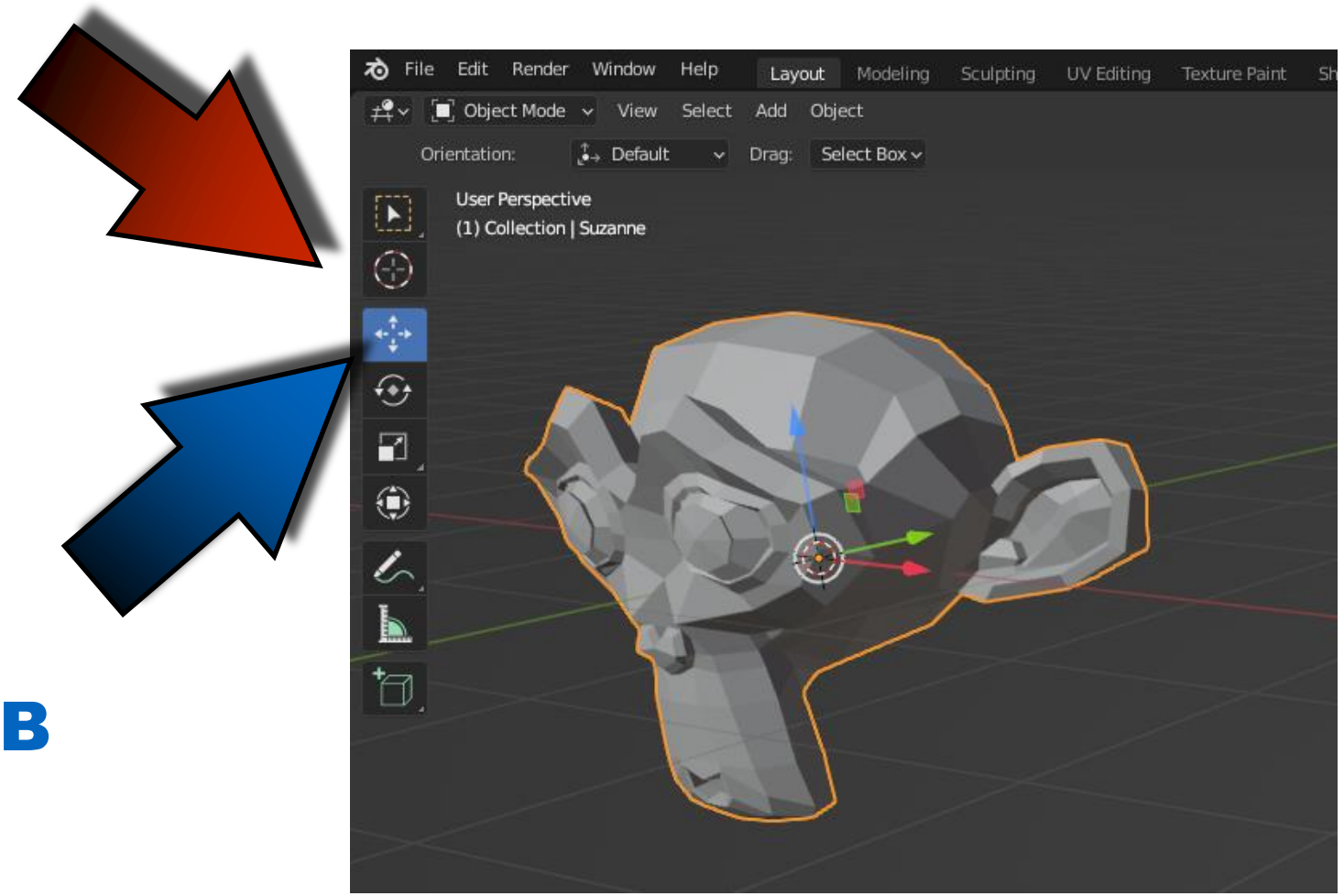
YOU CAN CHANGE THE SCALE OF AN OBJECT

A MOUSE CLICK CONFIRMS THE POSITIONAND THE ESC KEY CANCELS

IF YOU PRESS X, Y, OR Z AGAIN, YOU WILL CHANGE THE VALUES ON THE GIVEN AXES.

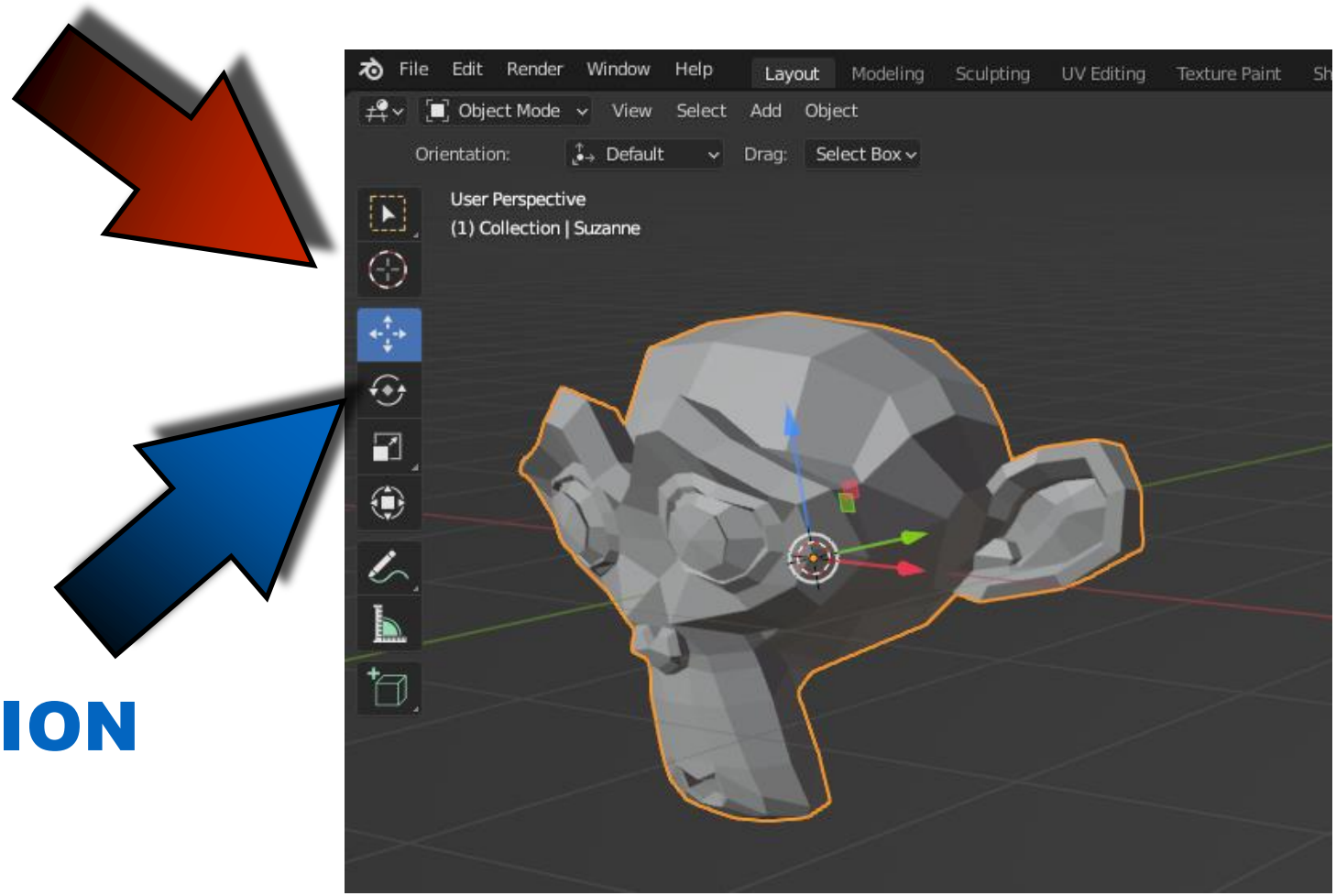
A MOUSE CLICK CONFIRMS THE POSITIONAND
THE ESC KEY CANCELS

THE SAME TRANSFORMATIONS CAN BE CHANGED IN THE TOOLBAR.



GRAB

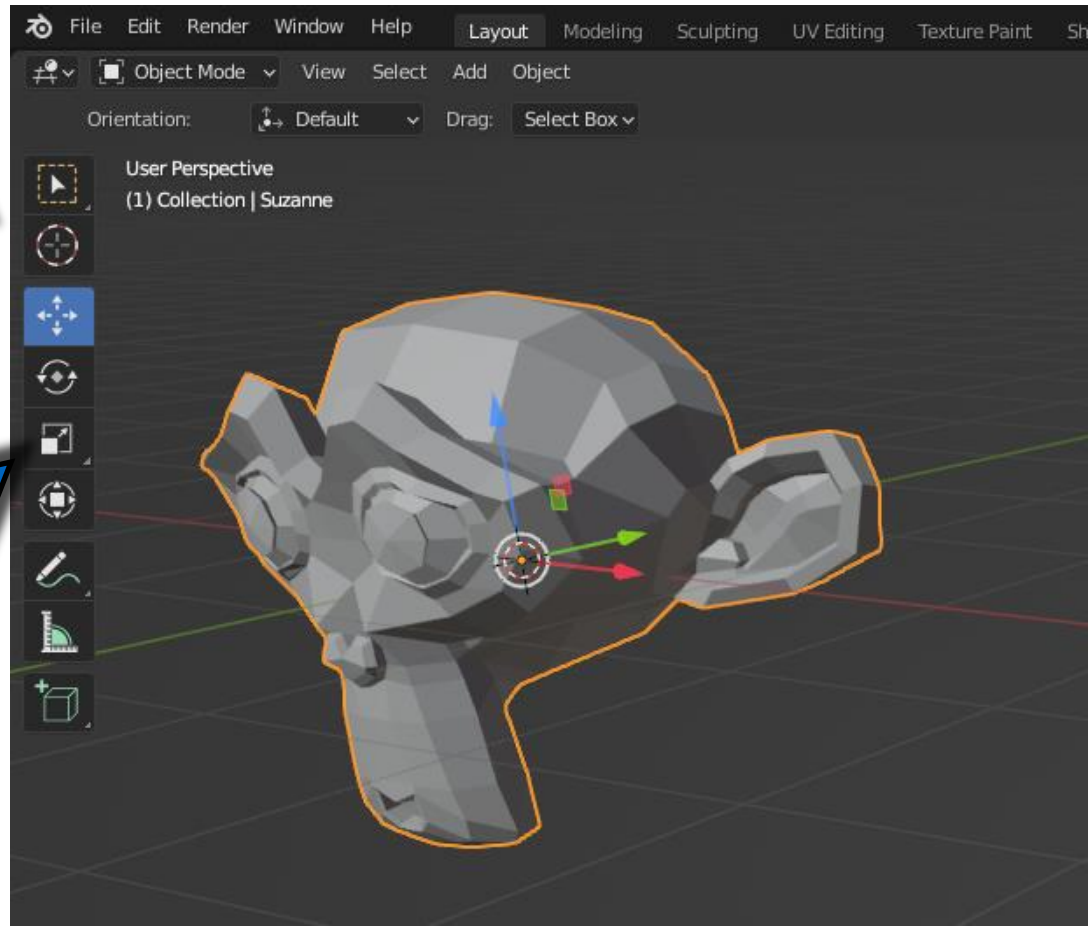
THE SAME TRANSFORMATIONS CAN BE CHANGED IN THE TOOLBAR.



ROTATION

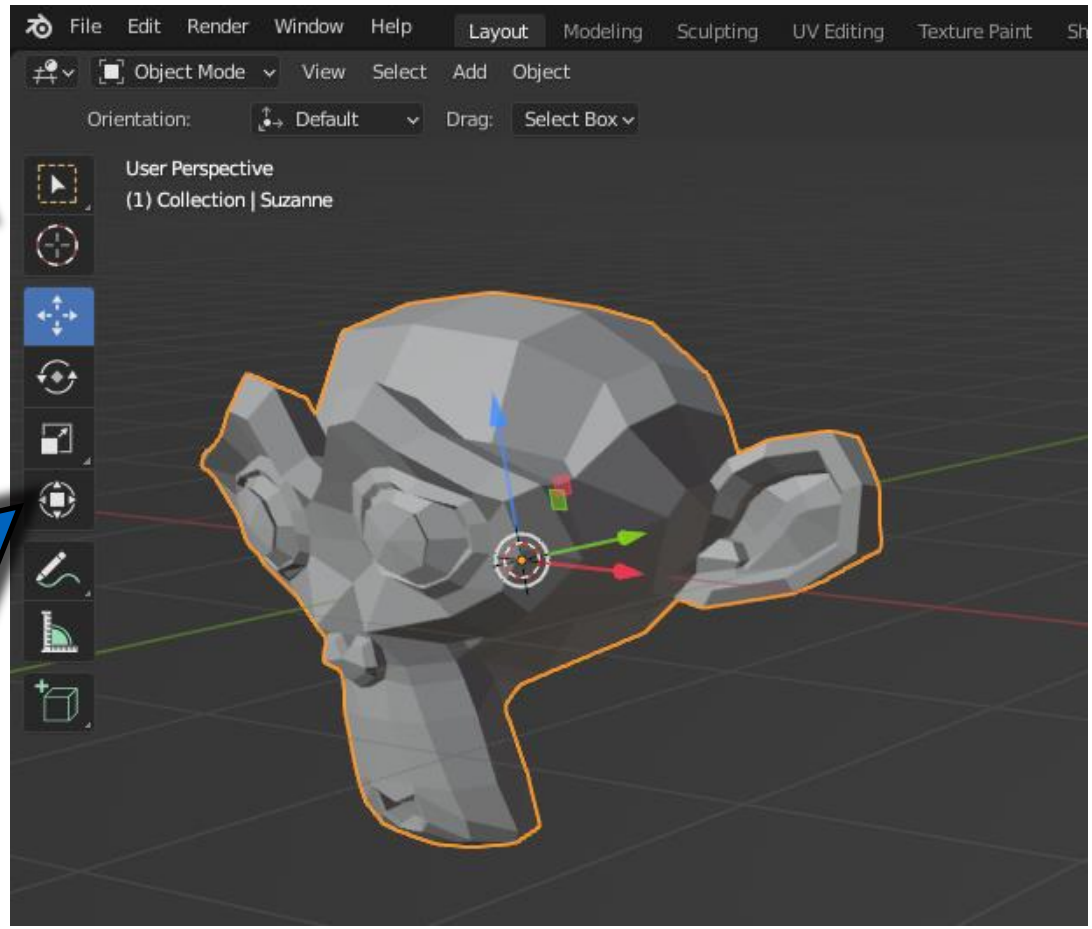
THE SAME TRANSFORMATIONS CAN BE CHANGED IN THE TOOLBAR.

SCALE

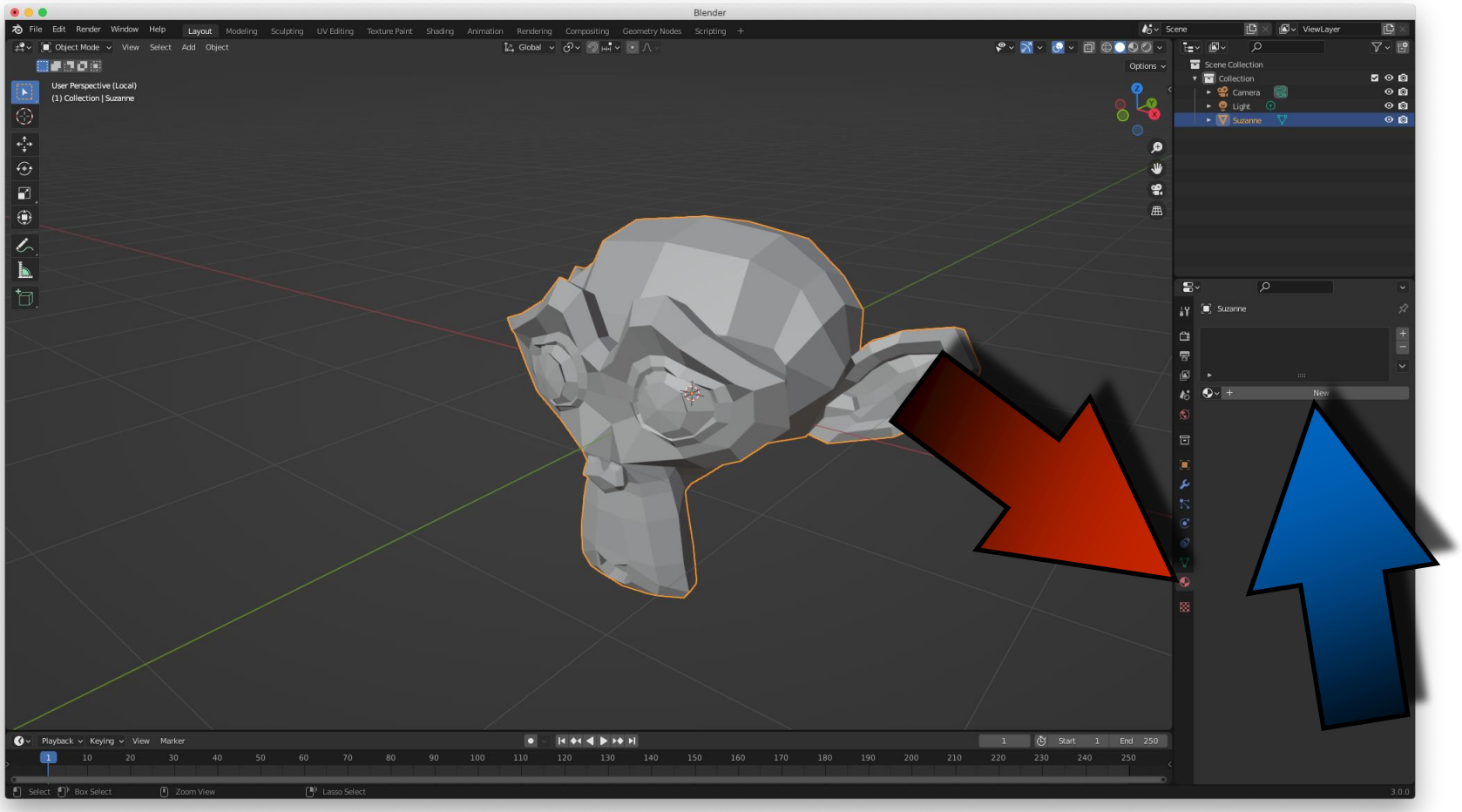


THE SAME TRANSFORMATIONS CAN BE CHANGED IN THE TOOLBAR.

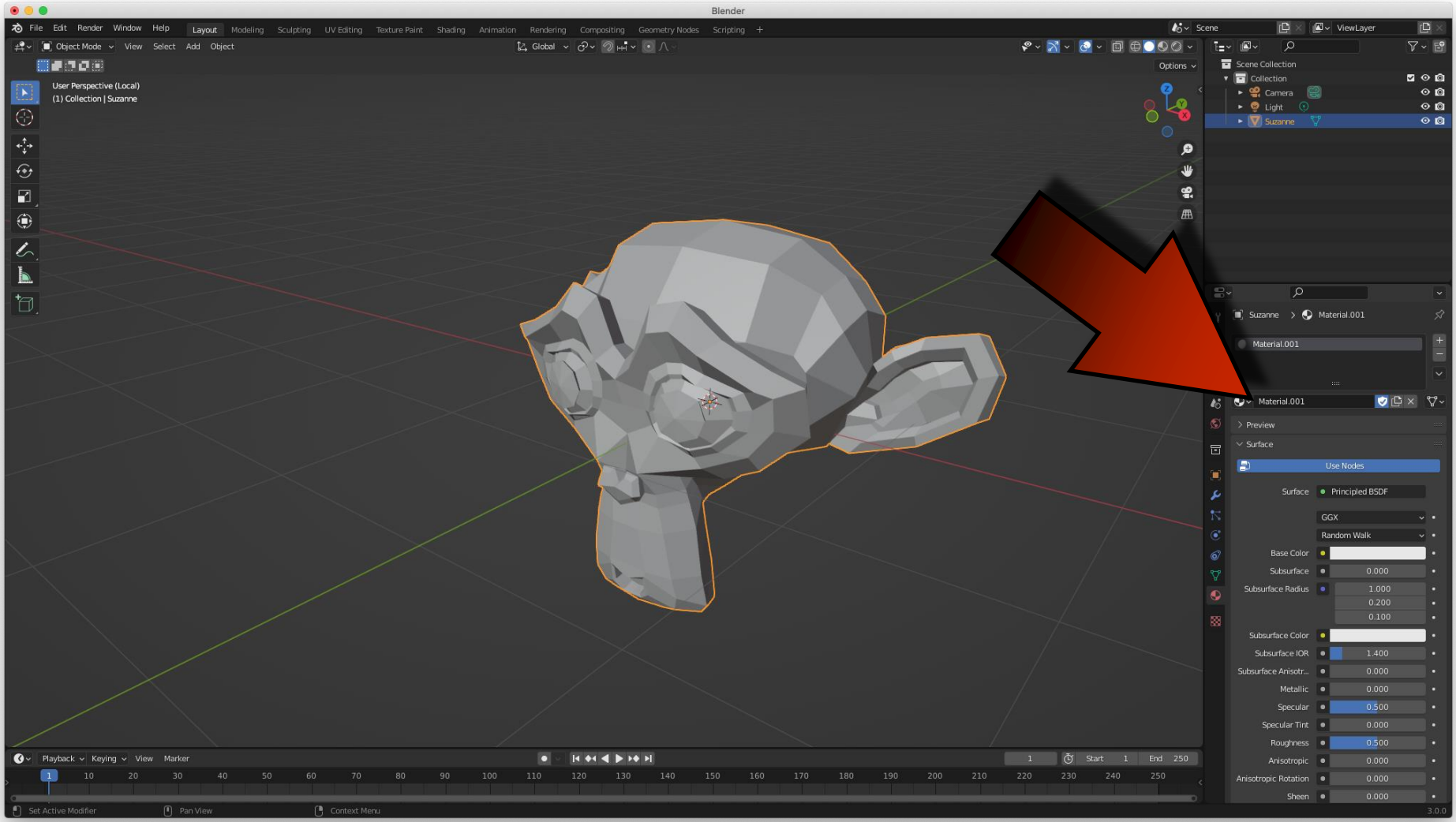
ALL



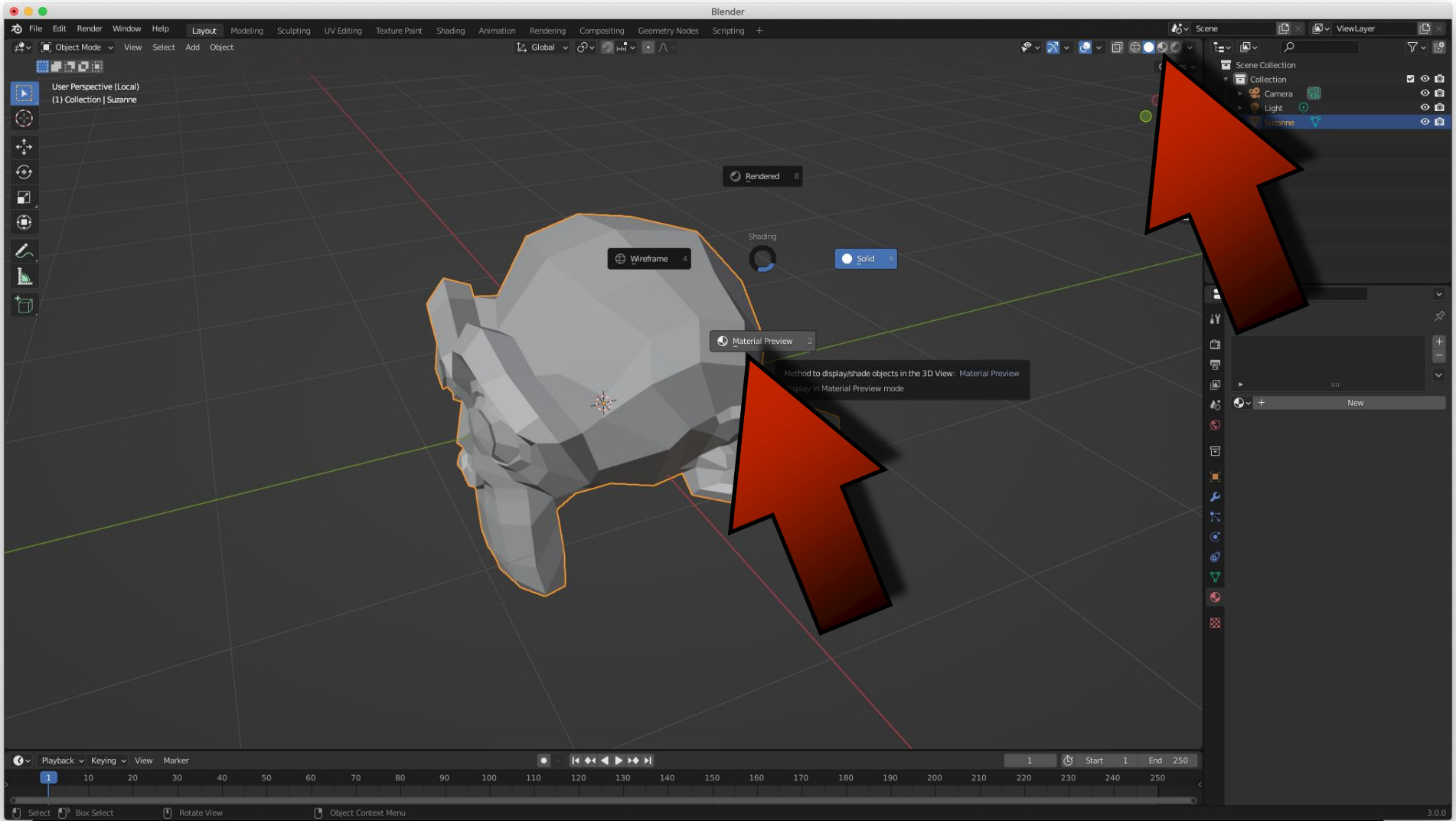
IF WE WANT TO ADD COLOR, CLICK ON THE MATERIAL AND THEN ON THE NEW ONE.



BY DEFINITION WE WILL SEE THE MATERIAL SURFACE SETTINGS BOX (PRINCIPLED BSDF).



CLICK THE Z KEY AND SELECT MATERIAL PREVIEW.



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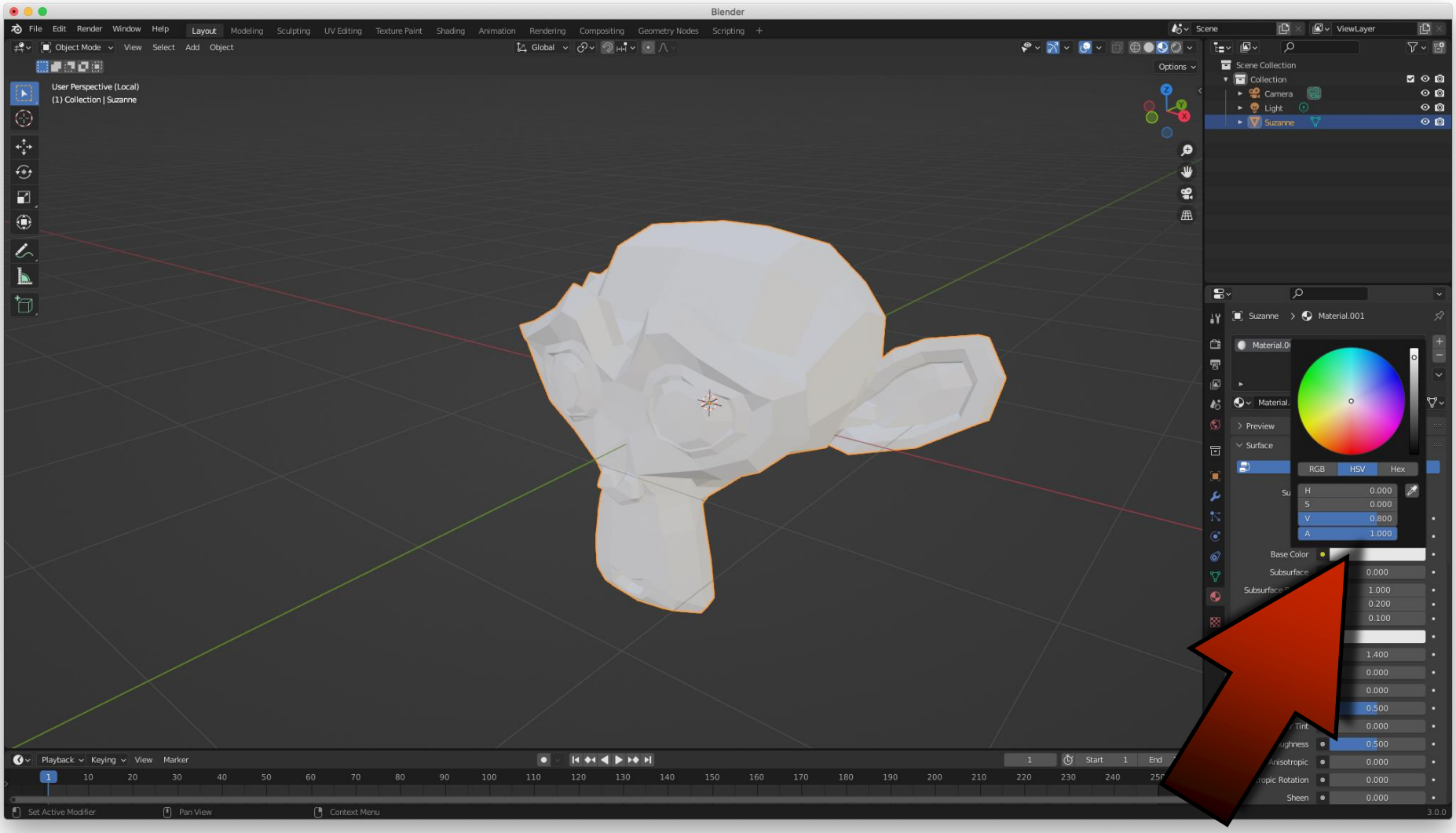
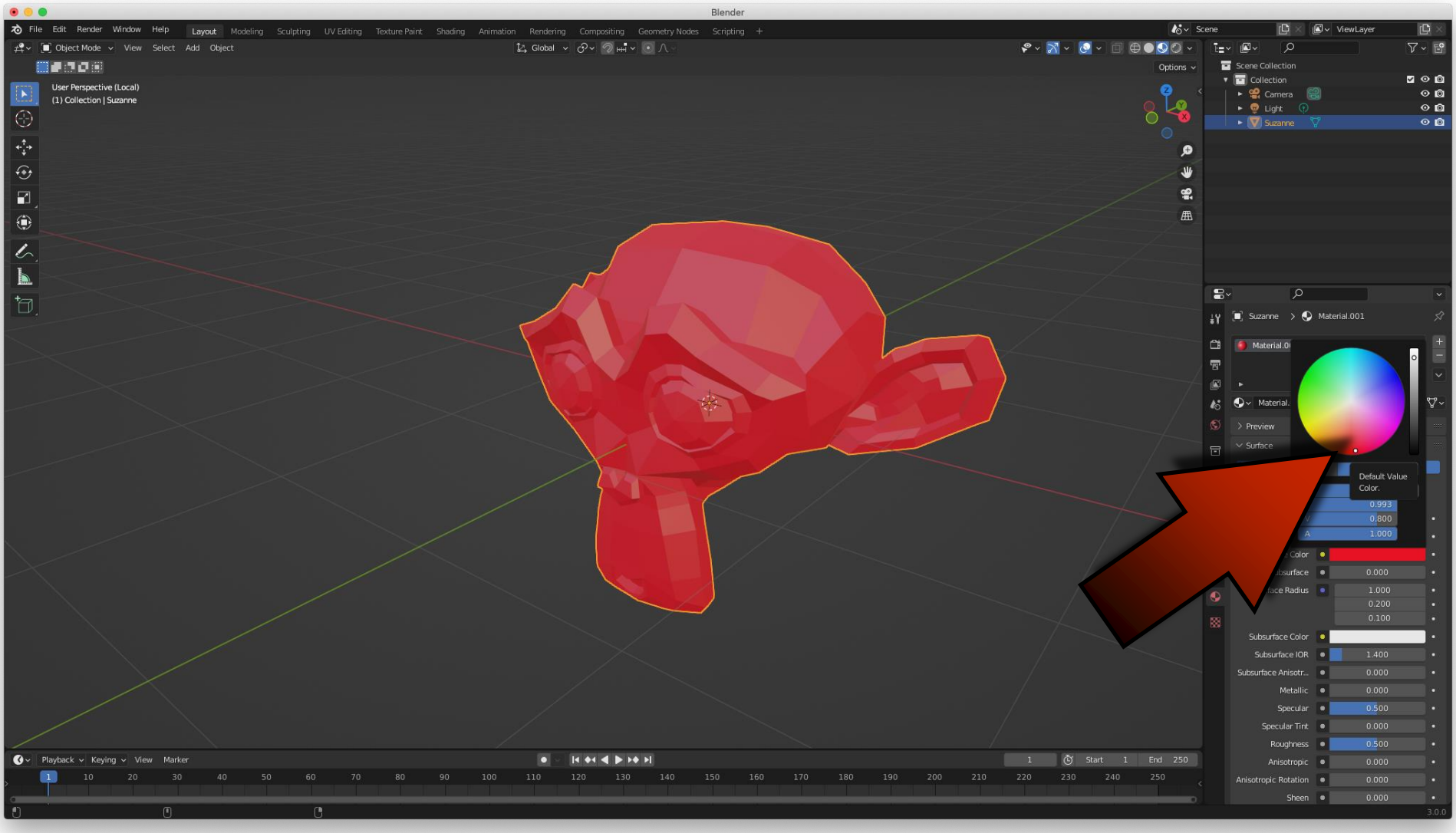
CLICK ON THE WINDOW

BASE COLOR.

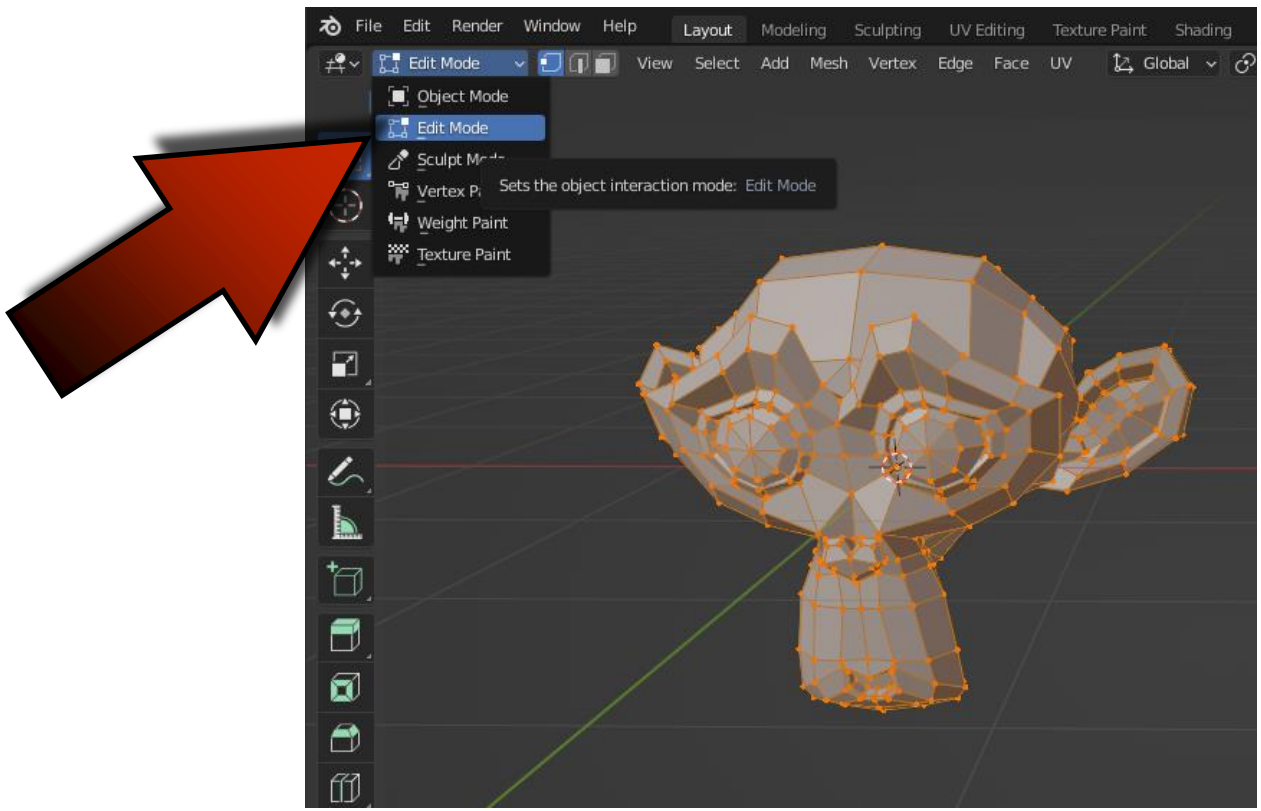


PREPARATION TO WORK

CHANGE MODEL COLOR



IF WE WANT TO CHANGE ELEMENTS INSIDE THE OBJECT, WE HAVE TO ENTER EDIT MODE OR PRESS THE TAB KEY.



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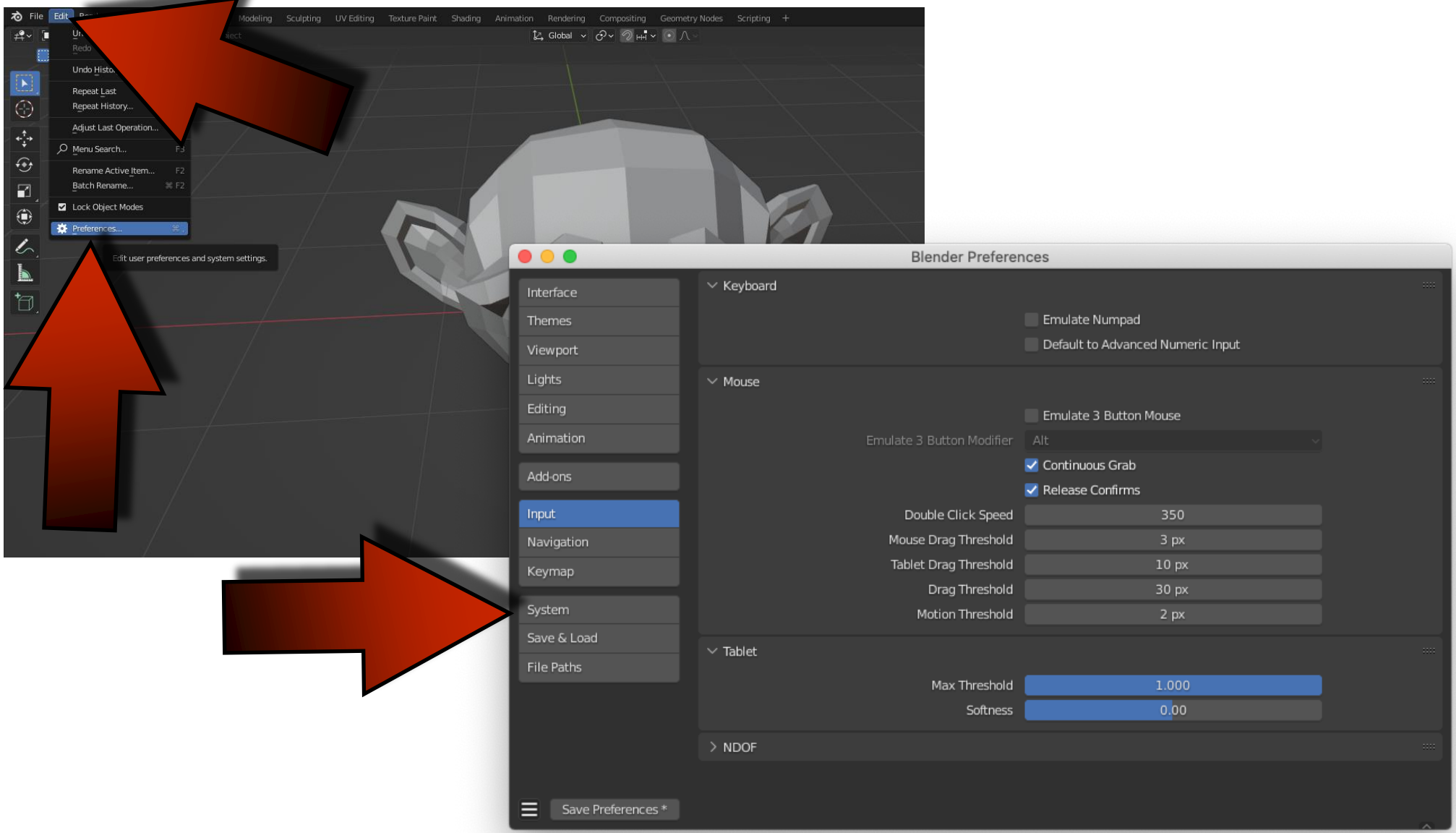
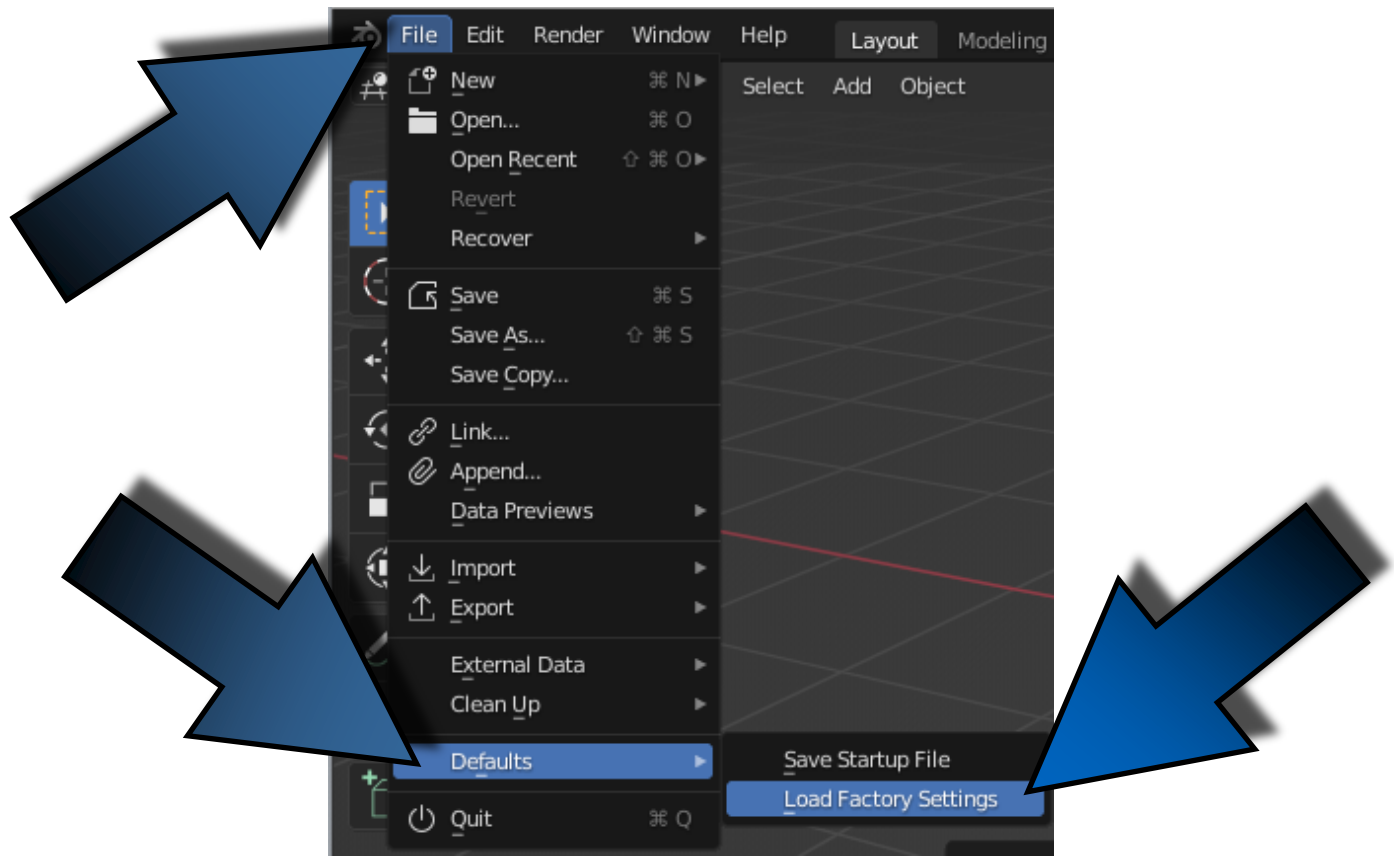
PROGRAM CONFIGURATION



PREPARATION TO WORK

IF WE CHANGE ANYTHING IN THE PROGRAM SETTINGS, WE CAN ALWAYS LOAD FACTORY SETTINGS.

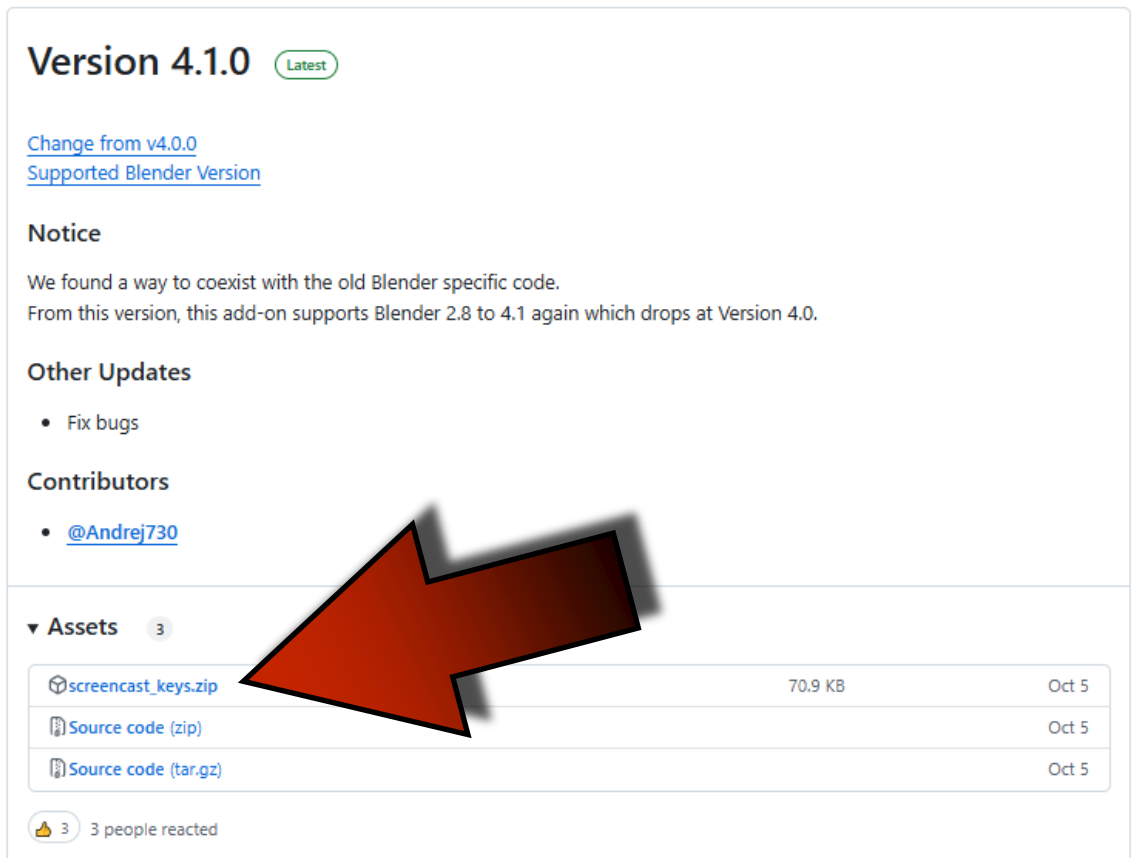


IF YOU WANT OTHERS TO KNOW WHICH KEYS YOU ARE PRESSING, YOU CAN INSTALL A COMPONENT THAT WILL DISPLAY THEM.

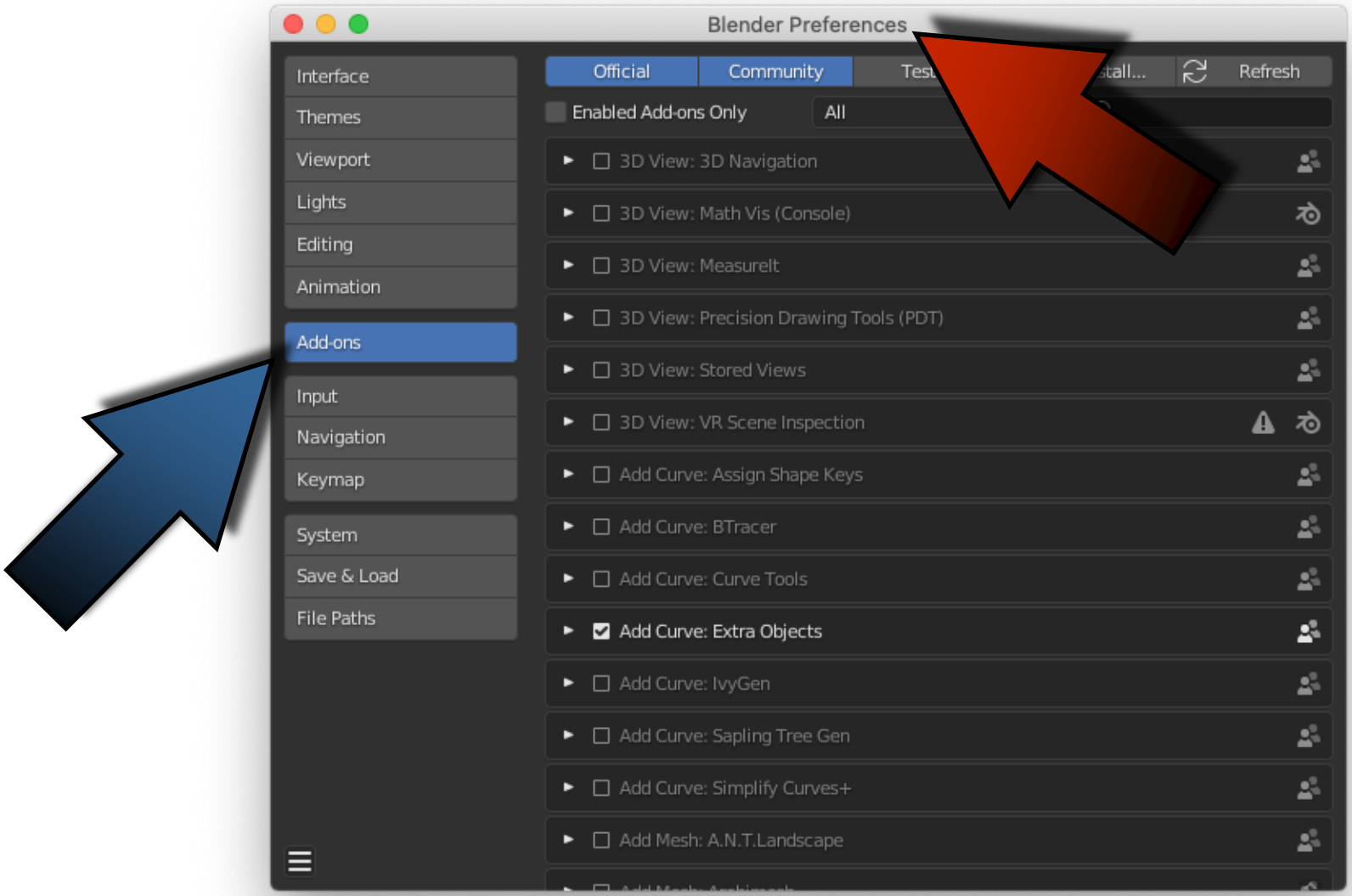
ENTER THE WEBSITE

https://github.com/nutti/Screencast-Keys/releases

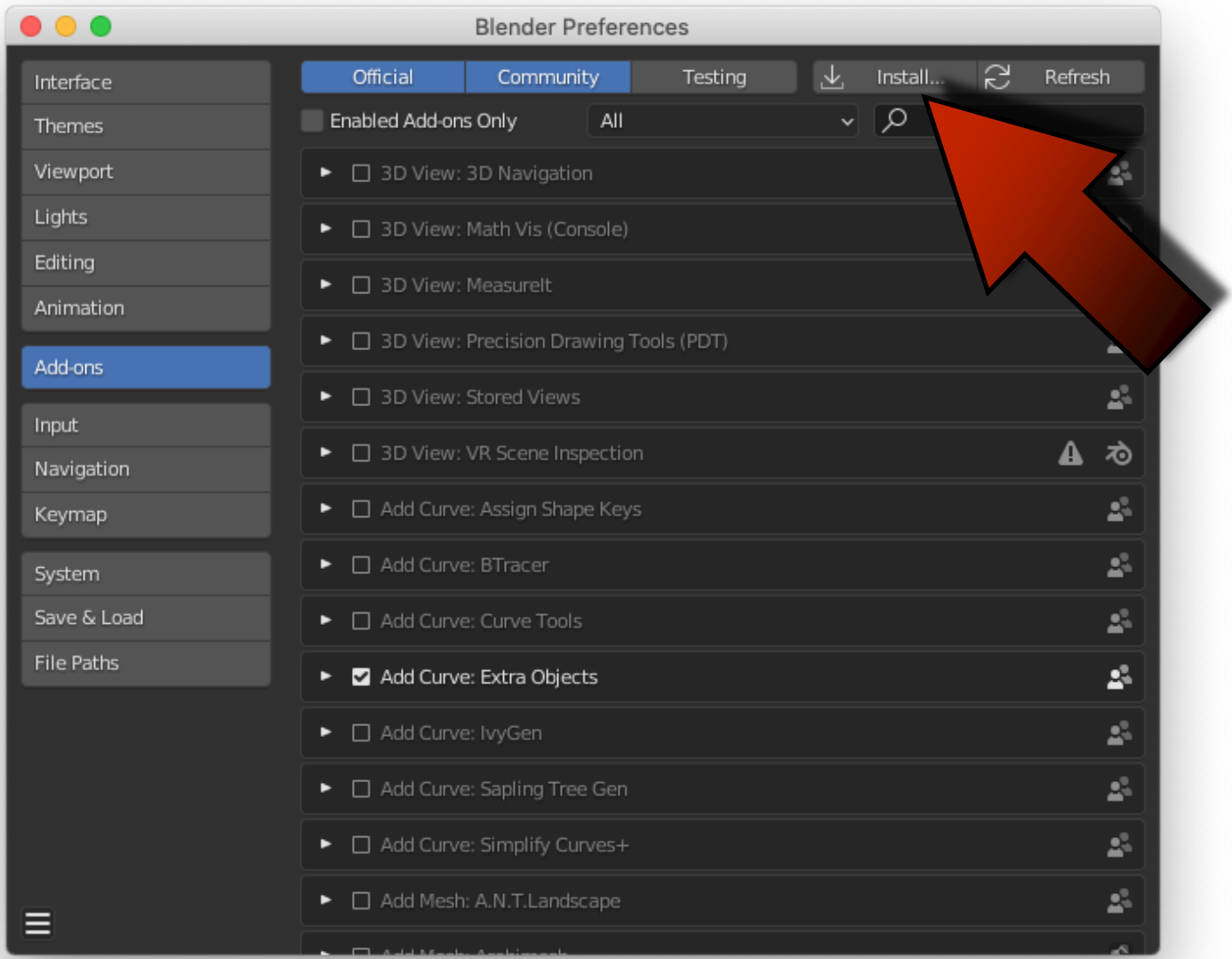
AND DOWNLOAD screencast_keys.zip



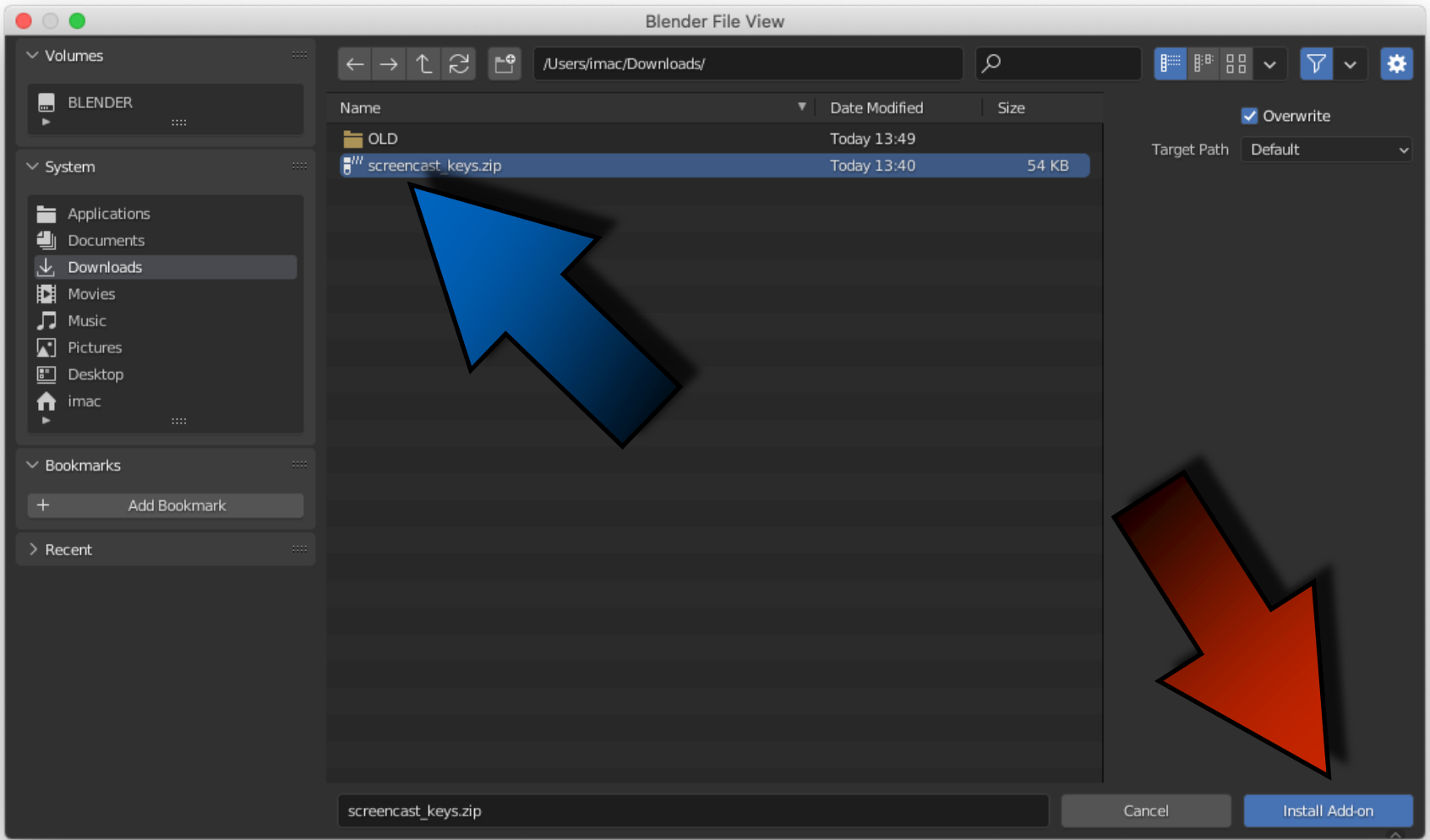
GO TO PREFERENCES AND ADD-ONS TAB



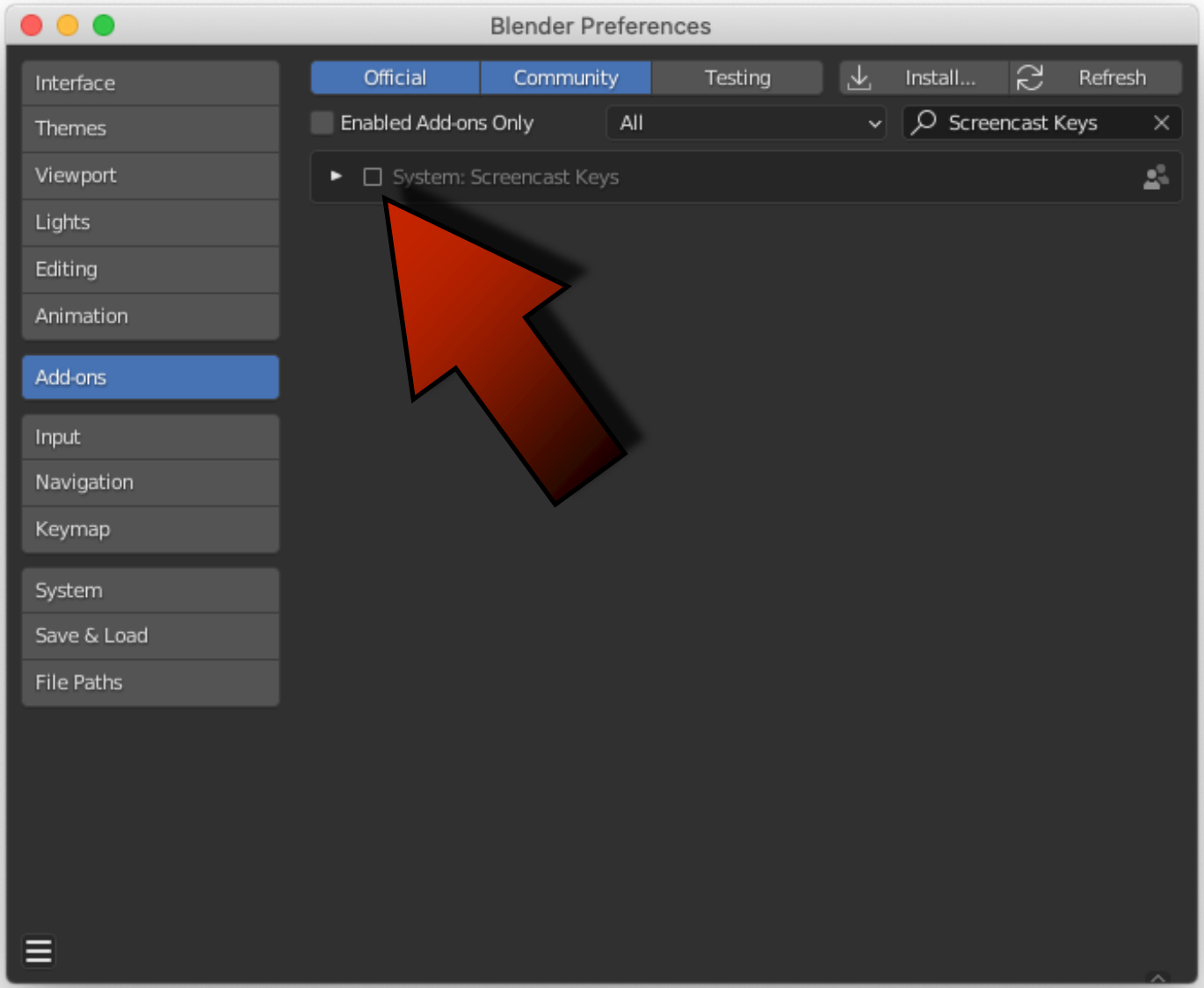
CLICK ON INSTALL



SELECT AND INSTALL screencast_keys.zip

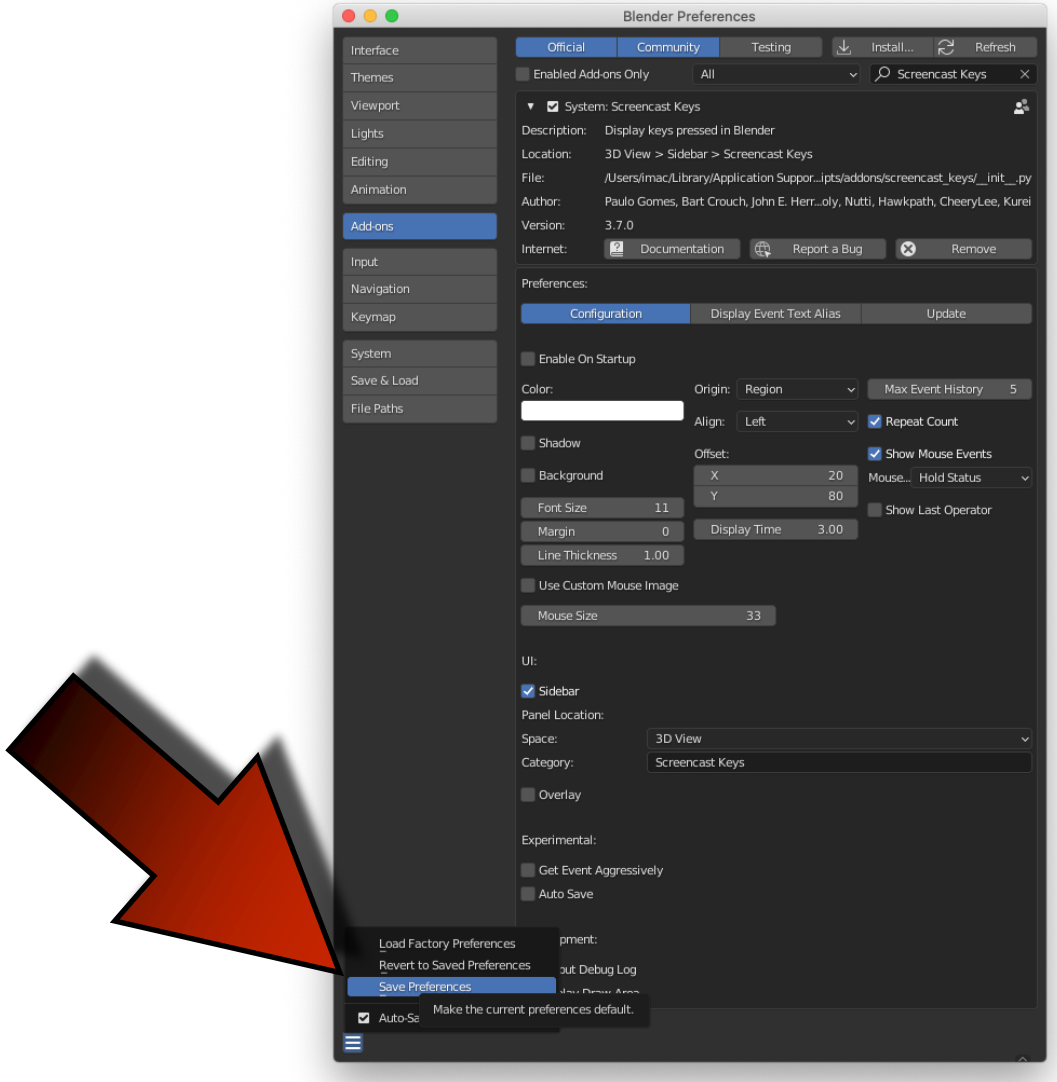


MARK INSTALLED COMPONENT

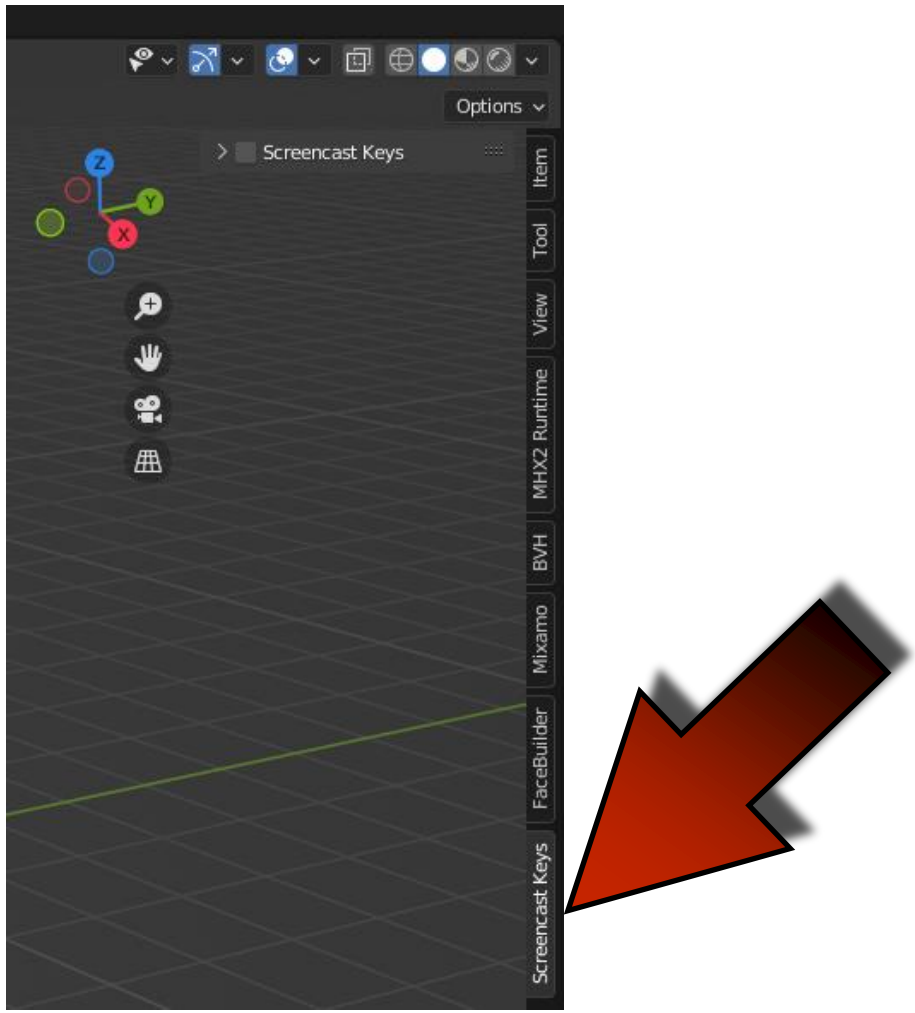


TO MAKE IT ALWAYS VISIBLE

CLICK ON SAVE PREFERENCES



THE COMPONENT WILL BE VISIBLE AT THIS POINT



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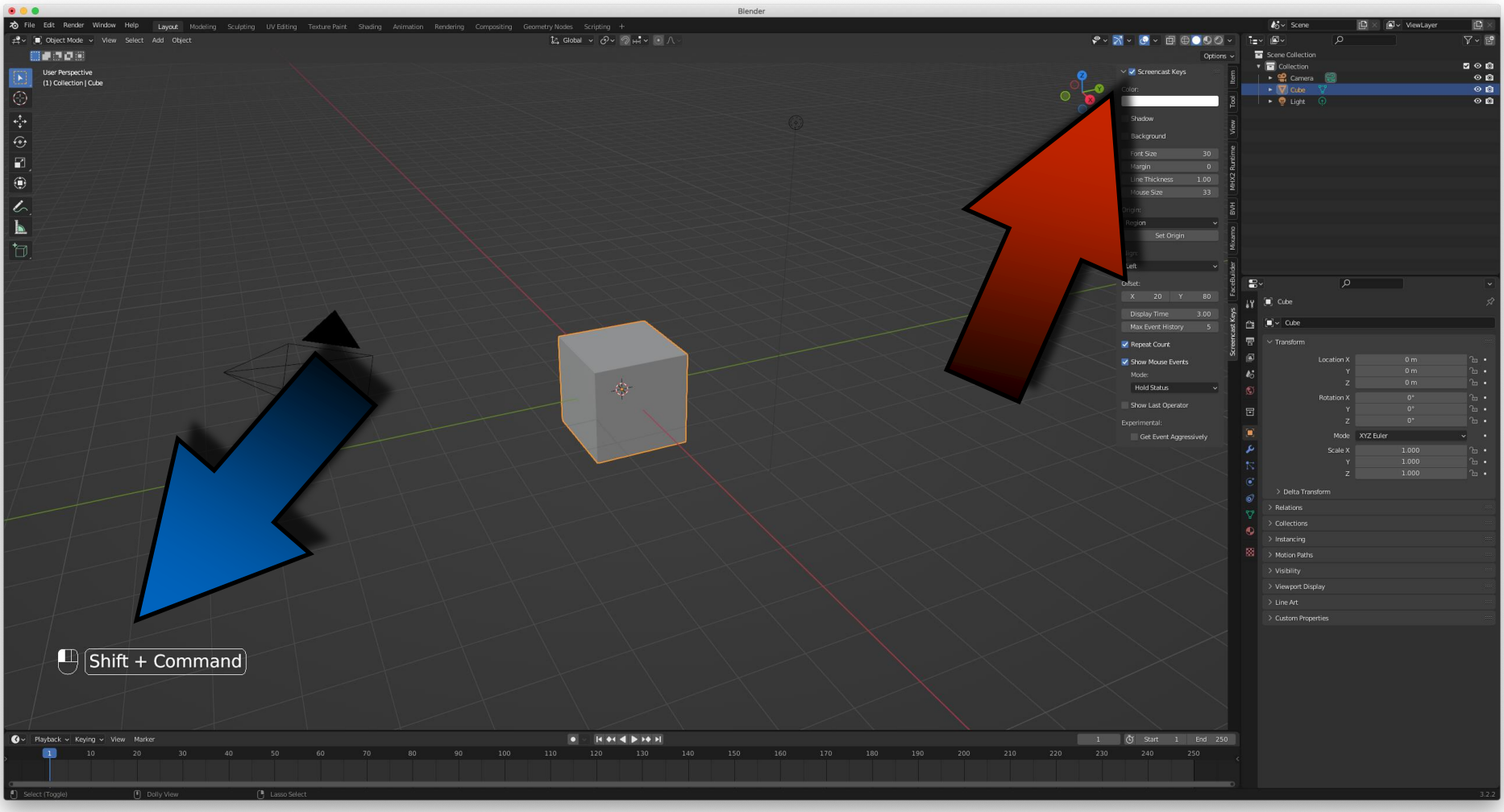
TO ACTIVATE IT CLICK ON SCREENCAST KEYS



PREPARATION TO WORK

POWER OF AR AND VR

DIĘKUJĘ ZA UWAGĘ

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JACEK KAWAŁEK