

UYGA VAZIFA



1. Blender dasturida chiroq holatlarini o'zgartiring.
2. Blender dasturi obyekt transformatsiyasida ishlatiluvchi uskunalardan foydalanib ko'ring.
3. Transformatsiyada ishlatiluvchi tezkor tugmachalarni ishlatib ko'ring.

27-dars. 3D MODELLASHTIRISH DASTURIDA 3D MODELNI TAHRIRLASH. MESH OBYEKTLAR

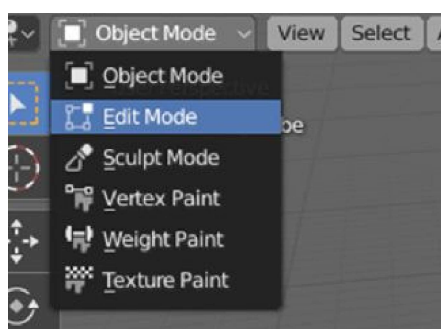
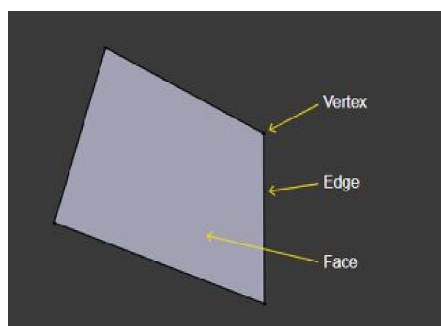
Blender dasturida modelashtirilmoqchi obyekt turiga qarab tahrirlash rejimlarining har xil turlari mavjud. Har bir rejim turlicha o'zgarishlarni amalga oshiradi. Tahrirlash rejimlari to'plami obyekt turiga bog'liq. Masalan, kubni olti xil rejimda tahrirlash mumkin.

Kub obyekti *Mesh* obyektlar guruhiga mansub bo'lib, u vertikal (Vertex), qirra (Edge) va yuza (Face) tuzilmalaridan tashkil topgan (1).

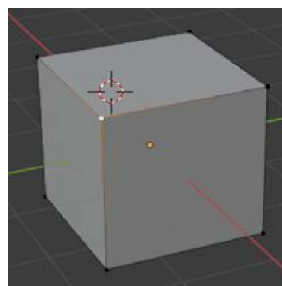
Dastur "Object Mode" rejimida turganida kub bilan ishlashning umuman imkoni yo'q. Shuning uchun "Edit Mode" rejimiga o'tish zarur (1). Blenderda "Edit Mode" rejimiga o'tish klaviaturaning "Tab" tugmachasini bosish orqali amalga oshiriladi. Bundan tashqari, 3D Viewportda ochiluvchi ro'yxat yordamida ham obyektni o'zgartirishning boshqa rejimiga o'tish mumkin (2).

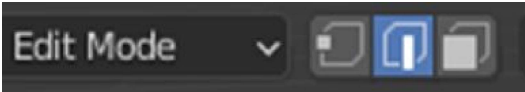
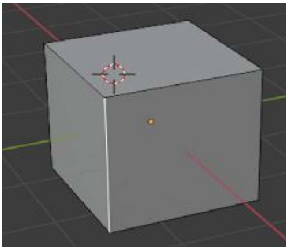
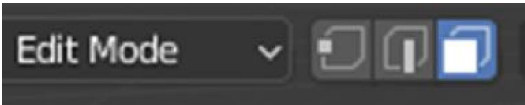
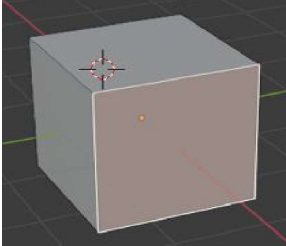
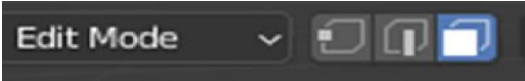
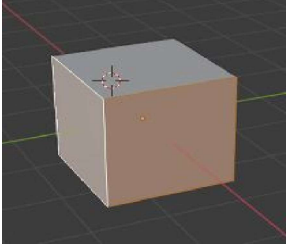
"Edit Mode" rejimi "Move", "Rotate" va "Scale" obyekt transformatsiyalari kabi ishlaydi. Biroq transformasiyalar vertikal, qirra va yuzalargagina qo'llaniladi.

3D modelning "Edit Mode" rejimidagi elementlarni tanlash, obyektlar singari, sichqonchaning chap tugmachasini bosish orqali amalga oshiriladi. Agar bir nechta elementni tanlash kerak bo'lsa, u holda "Shift" tugmachasi bosib turiladi (3).



Vertex tahrirlash

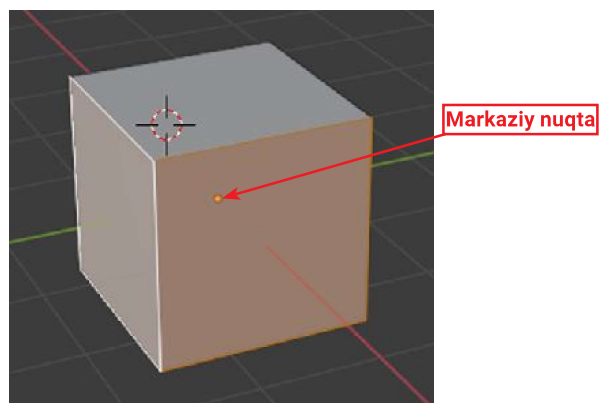


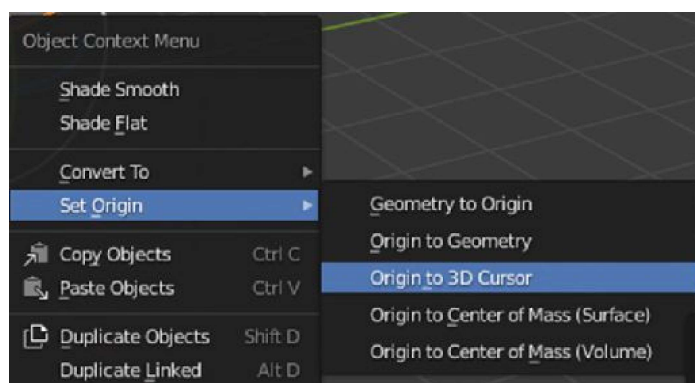
Edge tahrirlash 	
Face tahrirlash 	
"Shift" tugmachasini bosgan holda, "Face" (rasmda: kubning ikki yuzasini) tahrirlash 	

Har bir obyekt markaz vazifasini bajaruvchi markaziy nuqtaga ega bo'ladi. U obyekt rejimida ham, tahrirlash rejimida ham aks etadi.

Obyektning koordinatalari markaziy nuqtaning joylashuvi bilan belgilanadi. "Object Mode" rejimidagi barcha jarayonlar unga nisbatan amalga oshadi. Masalan, "Rotate" (R) tugmachasi bosilganda, markaziy nuqta kubning markazida bo'lsa, kub o'z joyida aylanadi (4).

3D modelning markaziy nuqtasini o'zgartirish uchun sichqonchanning o'ng tugmachasi bosiladi. Hosil bo'lgan kontekst menyudan "Set Origin – Origin to 3D Cursor" bandi tanlanadi. Ya'ni 3D kursor joylashgan joyni markaziy nuqta deb qabul qiladi (5).

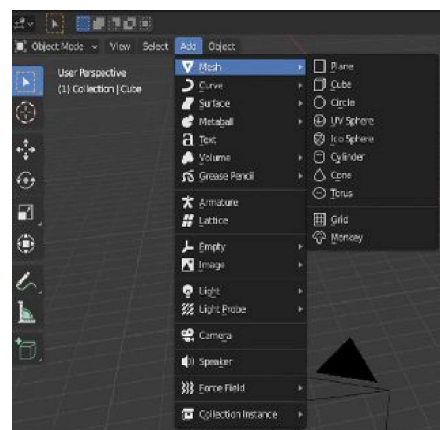




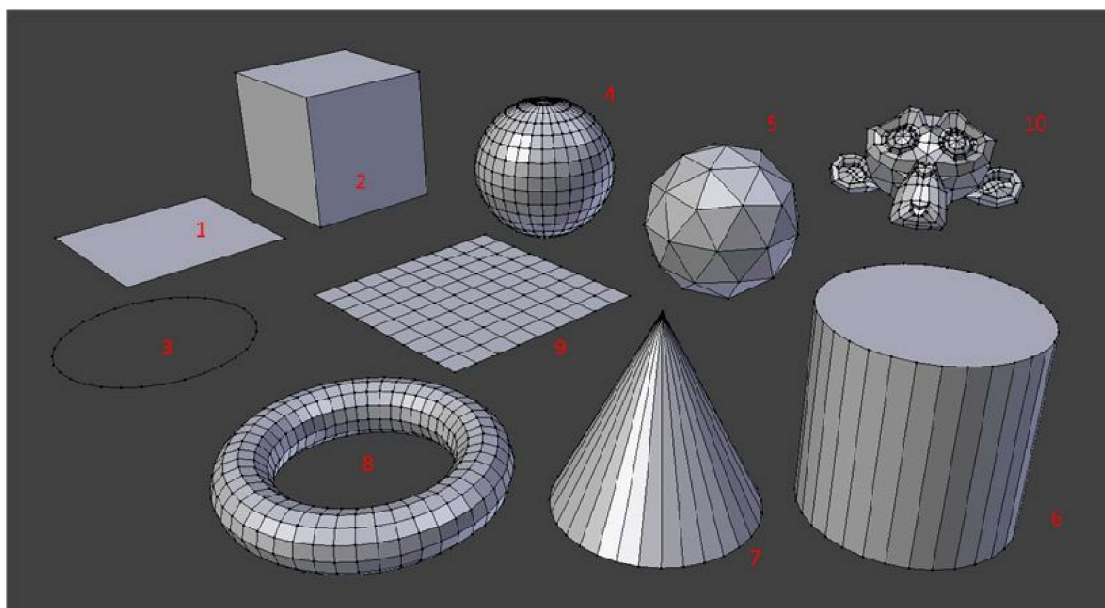
MESH OBYEKTLAR

Blender dasturida 3D modellashtirish uchun ko'plab obyektlar mavjud. Bunday obyektlardan biri Mesh obyektlardir. Ulardan murakkab shakllar yaratishda foydalaniladi. Mesh obyektlarga misol sifatida kub, silindr, sfera va hokazolarni keltirish mumkin.

Blender dasturida 10 ta mesh obyekt mavjud, 3D Viewport muharriri paneli orqali "Add—Mesh" qo'shish mumkin (6).



- *Plane* – tekislik. Bu mesh 3D obyekt emas, u tekis va qalinlikga ega emas. Undan sirt, yuza, pol va oynalar yasaladi. U stol ustida yotgan qog'ozga o'xshaydi (1);
- *Cube* – Blenderning asosiy 3D mesh obyekt. U to'rtburchak modellarni loyihalash uchun juda qo'l keladi (2);
- *Circle* obyekt 3D obyekt sifatida ko'rinmaydi, lekin uni 3D ko'rinishida shakllantirish mumkin (3);
- *UV Sphere* – doira va segmentlardan hosil bo'lgan shar. U parallellar va meridianlardan iborat globusga o'xshaydi (4);
- *Ico Sphere* – uchburchaklardan hosil bo'lgan shar (5);
- *Cylinder* silindr ko'rinishidagi 3D obyektlarni hosil qilishda ishlatiladi (6);
- *Cone* konus ko'rinishidagi 3D obyektlarni hosil qilishda ishlatiladi (7);
- *Torus* yordamida silindrga o'xshash ikki tomoni ochiq 3D obyektlar yaratiladi (8);
- *Grid* – qismlarga ajratilgan tekisliklardan tashkil topgan kvadratik panjara (9);
- *Monkey* maymun boshi kabi 3D model qo'llaniladigan hodisalarni testdan o'tkazish (yaratilgan 3D model buzilmasligi uchun rang, teksturalarni sinab ko'rish)da ishlatiladi (10).



Shuningdek, bu menyuni klaviaturaning “Shift + A” tugmachalar birikmasi orqali ham chaqirish mumkin.

DIQQAT

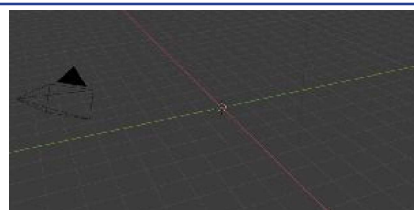


“Plane”, “Circle” va “Grid” obyektlari ikki o'lchamli bo'lishiga qaramay, tahrirlash rejimida ularni uch o'lchovli qilish mumkin.

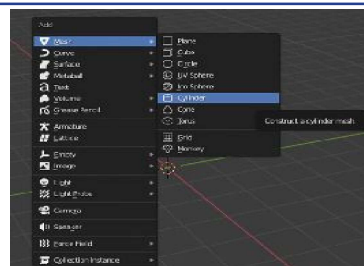
AMALIY MASHG'ULOT

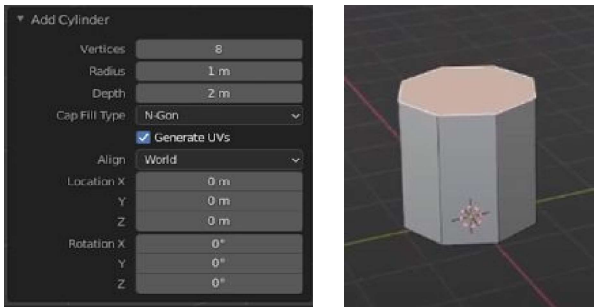
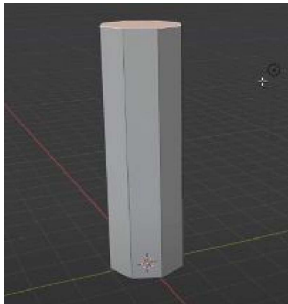
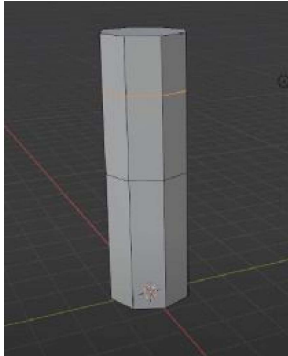
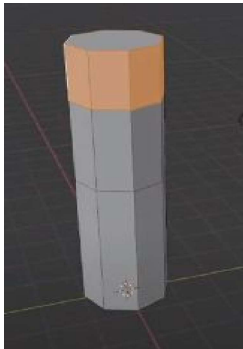
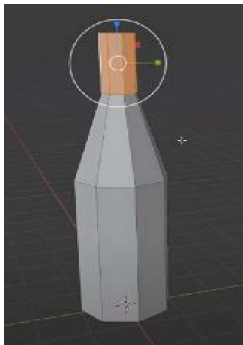
Blender dasturini ishga tushiring va “New file” bandidan “General” buyrug'ini tanlang.

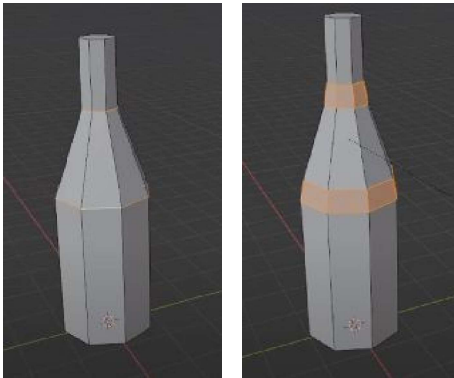
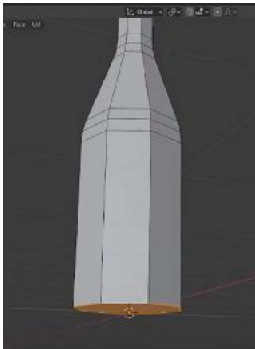
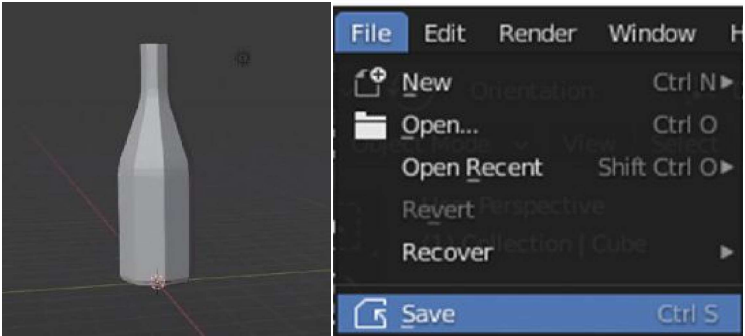
Sahnadagi kubni belgilab, “Delete” tugmachasi bilan uni o'chiring.



Bo'sh sahnaga “Shift+A” tugmachalarini bosib, hosil bo'lgan menyudan “Add—Mesh—Cylinder” bandini tanlang.



“Cylinder” xossalaridan “Vertex”lar sonini 8 ta qilib belgilang.	
“Move” uskunasi obyekt balandligini oshiring.	
“Tab” tugmachasini bosib, “Edit mode” rejimida obyektga “Ctrl+R” tugmachalarini bosib, 2 ta “Loop Cut” o’rnating.	
3D modelning yuqori qismidagi “Face”larni sichqonchani chap tomoni va “Alt” tugmachasi yordamida belgilang.	
“Scale” (S) yordamida quyidagi ko’rinishga keltiring:	

3D modelning ikkita “Edge” qismini “Alt+Shift” bilan belgilab olib, “CTRL+B” tugmachalari yordamida unga qirralarni qo’shing.	
Pastki “Edge” qismida ham mana shu amalni takrorlang.	
“Tab” tugmachasini bosib, “Object Mode” rejimida 3D modelni ko’ring. Yaratilgan 3D modelni “flask.blend” nomi bilan saqlab qo’ying.	

Mavzu yuzasidan savollar



1. Mesh obyektlarni sanab bering.
2. Vertex nima?
3. Edge nima?
4. Face nima?
5. “Edit Mode” rejimiga qanday o’tiladi?

UYGA VAZIFA



1. Blender dasturida “Edit Mode” va “Object Mode” rejimlariga o’tishni sinab ko’ring.
2. Blender dasturi sahnasiga “Mesh” obyektlarni joylab ko’ring.