1.0 Blender GUI

- To reset to a new world at any time: CTRL-N
- If the headers are at the bottom, RMB in the header and select “top”

1. 3D view controls:
   - Scroll-wheel: zoom in/out
   - Middle Mouse Button (MMB)-drag: rotate 3D view (“orbit”)
     Note right-hand world with RGB = XYZ axes; UP is Z
   - Shift-MMB: pan
   - NUM-7, NUM-1, NUM-3: Reset view to TOP, FRONT, RIGHT
   - NUM-5 to toggle between ORTHO and PERSPECTIVE view

2. Select the cube: right-click on the cube.
   - Select the camera, and then the light... then select the Cube again

3. Show “Render Camera” view:
   - NUM-0 to view the world from the Camera’s viewpoint (again to toggle)
   - RMB on outer camera frame line;
     then R-key TWICE: allows re-aiming the camera
   - Camera can also be repositioned and re-aimed (oriented) using transform manipulators; see below

4. Delete the cube: RMB to select and then DEL key

5. Add an “icosphere” (“icosahedron”): Add (or Shift-A)->Mesh->Icosphere.
   - Note that the object gets added at the position of the 3D (“peppermint riflesite”) cursor, which can be set by LMB clicking.
   - If the object is surrounded by a yellow mesh, it is in EDIT mode... hit TAB to switch to OBJECT mode

6. Add several other MESH objects:
   - LMB at different locations then Add->Mesh->Cylinder, Cone,
   - Be careful: if the 3D cursor is below the ground plane the object will be too...

7. Toggle between SOLID and WIREFRAME: Z key

8. Object selection:
   - RMB on each object to select/highlight it
   - (shift-RMB to add to selection; A-key = select all)

9. Switch to Front view: NUM-1
   - Note the axis-orientation symbol in the lower left corner
   - It changes as you move between Top view (NUM-7), Front view (NUM-1),
     Side view (NUM-3), and 3D view (MMB-drag)

10. View object properties:
    - View->Properties menu to show property sheet for currently selected object
    - shortcut (toggle) is ‘N’
    - Changing selected object changes property sheet values

11. Apply transforms to an object:
    - RMB to select an object
    - ‘R’, ‘S’, or ‘G’ (Grab) key to activate rotate/scale/translate mode
    - Drag to transform.
    - RMB again (or ESC) to cancel; LMB to accept (apply) transformation.
      Note: while in ‘G’ (Grab) mode, holding X/Y/Z constrains the translation

12. Duplicate an object:
    - RMB to select some object
    - Shift-D to create a duplicate
    - Mouse-move to move the duplicate away; LMB to accept it

13. Using Manipulators (a shortcut for transformations)
    - RMB to select an object
    - LMB on the Red/Green/Blue arrows (translation manipulators) and drag
    - Note: if no Red/Green/Blue 3D Manipulator appears when the object is selected, enable 3D manipulators by clicking on the little RGB Axis picture in the 3D View header (or use Ctrl-Space), then click either the translate, rotate, or scale symbols next to the Axis picture.

14. Multiple Windows
    - The default setup (achieved using Ctrl-N) displays five “windows” (called editor types). An editor type (window) is identified by little diagonal ridged “thumb grips” in the upper right and lower left corners. Each window has an icon in its upper left (or lower left) corner identifying its type. The five default windows are: (1) Info (at the top, what is normally described as the “menu bar”, containing File, Add, Render...); (2) 3D View (the main screen); (3) Outliner (top right); (4) Properties (right middle and bottom); and (5) Timeline (bottom)
    - Windows can be split (duplicated) by dragging the thumb ridge icon. Once a duplicate window is created, the editor-type icon can be used to change it.
    - Windows can be merged by LMB clicking and then dragging into the window to be overwritten. Windows must be the same size in the drag direction to be able to be merged.
    - Ctrl-UpArrow will toggle the window containing the mouse to become full-screen (within the Blender application window).