We've come to the second to the last chapter of the book (the last chapter deals with 3D printing) and what better way to end this introduction to Blender than to compile all of your work into a final movie. While you can compile your video in programs like Adobe Premiere or Windows Movie Maker, Blender has its own movie editor that is quite functional. Combine the Video Editor with Nodes and you have everything you need to make a professionally edited movie with sound, right inside Blender.

Compiling Your Clips and Images
Think of all the work you've done in Blender. You probably have a lot of short movie clips and saved images. Let's put them into a movie. Most movies start with a black screen. To handle this, I typically insert a picture that has been saved as just a black filled image.

First thing, set up your scene for your final movie output. Blender can only compile sounds into an MPEG movie (due to open source issues). This is actually great because mpeg2 movies output high quality and are DVD-ready. The settings are just a review of what we have done in previous chapters. If you need a review, look at page 7-3.

The only thing new is that you need to make sure the "Sequencer" box is checked in Post Processing. Without this being checked when you hit "Animate" Blender will only animate the 3D scene and not the sequence. For best results, always animate at the same size and frame rate- mismatched sizes and rate could cause output problems.

Now, switch the screen layout to "Video Editing".

Here is a look at the screen layout:
Chapter 1- The Blender Interface

Let's start by adding 2 images to our timeline. We'll add a Black screen image and a saved image of our Lighthouse. To do this, click the "Add" button at the bottom of the window and select the "Image" option. You can add Effects, Sounds, Images, Movies and Scenes. Browse to your saved images. My 1st image will be a black screen. It doesn't matter which track you drop it into, but I usually work with the bottom tracks for images and movies. Place the track to start at Frame 1. Items placed in the timeline can be selected and moved using standard Blender commands (G key). You can also zoom and pan in the tracks. By default, my image came in only 25 frames long- not even a second. This is where you need to get a feel for how long an image should be displayed. I want my black screen to last for 2 seconds plus 1 second for the fade transition. This would be a total of 3 seconds, or 90 frames. To lengthen an image, RMB click on the end of the strip. Only the end frame of the strip will highlight and you can stretch it with the "G" key. You will also notice that the numbers along the bottom of the window represent seconds. Only images can be stretched, videos cannot. They will give the appearance of being lengthened, but only the first or last frame will show longer.

It's now time to add the second image. Go to the "Add" button again and find the next Image. Place it on the track above the first one and overlap it about 1 second for the transition.

If you grab the green bar on the timeline tracks (represents current frame) you can drag it with the LMB as you watch the Preview Window. You can scroll the mouse wheel in the Preview Window if you need to zoom in or out. You should notice a switch from black screen to the rendered lighthouse. Right now, it is an abrupt change. We want a smooth cross fade.

To add a Cross Fade, you need to select Both tracks that you wish to cross with the LMB while holding "Shift" (standard Blender multiple selection command). It is important that you select the image that appears first in time (black image), then the second. Otherwise, the cross will work backwards. With both selected, go to the "Add" menu, "Effect Strip" and choose "Cross". Place it in the track above the two. There are many options for different effects.

Now when you scrub the time line with your mouse or press the play button (or "Alt-A"), you should see a smooth transition.
More About Transitions:
While many other video editors give you more transition options than Blender (star bursts, spirals, etc.), Blender has what most people need for professional production. A Cross or Wipe. When you watch a movie, most scene usually just cut from one clip to another or fade (cross) to the next scene. Sometimes, you will see a wipe or iris effect, which Blender can do. If you add a “Wipe” from the “Effects Strip” menu, you can scroll down through the Transform Properties window on the right to see your options. The current options are:

Transition Type: Select Clock, Iris, Double, or Single to show the type of transition effect.

Direction: Controls the direction of effect (up/down, left/right, in/out, clockwise/counter-clockwise).

Blur Width: Does the effect have a sharp edge or blurred?

Angle: Horizontal, vertical, or other angle of wipe.

Adding Movies:
Now it’s time to add a movie. Follow the same steps as before, but select “Movie” from the “Add” menu. When the movie come into your tracks, it will also contain an Audio track, represented in green (even if your video contains no audio). You can delete this upper track if desired. Place the movie and add a transition as before.

If you need to shorten a movie track, you can select the end and shorten it, like we did to lengthen an image, or you can place the green “current frame” bar at the desired cut location, select the clip and hit “K” for knife cut. The movie is split at that point.

When taking videos with phones and cameras, it may be difficult to keep your image sizes the same. Meaning, when they are brought into the video editor, they may be stretched to fit the Blender output dimensions. To correct this problem, images and movies can be cropped in the Transform Properties window by checking the “Image Crop” box. Simple adjust as needed.

RoboDude Says: It is best to work with movie files that have all been rendered at the same size and frames-per-second. Problems may occur when Blender tries to convert files that are different from the output you have selected.
More about Effect Strips:

So far, we've used the most common type of effects- a Cross and Wipe. Blender has several other useful effects in the Effects Strip menu. Here are a few:

**Alpha Over/Under**: If you have an image or image strip that has a transparency channel, like a title overlay, you can use these effects to do composite work. Just place the image over the movie strip, select both tracks, then add an “Alpha Over or Under” effect to combine them. The example to the right shows a text image with transparency placed over another image.

**Text:**

New to Blender is the “Text” effect strip. This will allow you to add simple text overlays on your timeline without having to create them in another graphics program, like GIMP. Options are limited at the time of this writing, but I expect the text command will grow in future releases. Currently, you cannot change the font and animating effects (i.e. changing the size or location of the text over time) are rough, but there are many other settings. You can change position and alignment, size, and add a shadow. You can also add Strip modifiers in the Transform Properties window to change brightness, color, and contrast.

**Speed Control:**

If you place a movie into your sequence that runs too fast or too slow, you can select that movie and add a “Speed Control” effect strip to the movie to change the speed. Select the end of the movie after adding the Speed Control and simple move it. The movie will stretch or shrink.

**Finishing Your Video Tracks:**

Continue to add images, clips, and transitions to finish the video part of your project. Sticking to the bottom tracks keeps your project looking clean. I usually alternate between 2-3 tracks. Don't forget to match your End frame to the end of your movie.

**RoboDude Asks**: When I press the “Play” button or press “Alt-A”, why doesn't my movie play through? Check the End Frame of your movie- you probably need to adjust it.
Adding an Audio Track

Adding an audio track isn't much different from adding images and movies. Many different audio track formats are accepted by Blender and the most common are WAV and MP3 files. Some files may need to be converted through an audio converter, many free on the internet. There have been some helpful upgrades to working with audio in the sequence editor. To add an audio file, go to the “Add” menu and select “Sound”. Find your file and add it to an upper track. Trimming an audio track is accomplished the same way you cut or shorten a movie or image. (grabbing the end or using the “K” knife tool). To help you find a more exact point, you can zoom in on the audio track and see the waveform after checking the “Draw Waveform” box in the Transform Properties.

With an audio track selected, look at the options to the right. The most important options are displayed at the bottom. You can “Pack” a sound into the Blender file and adjust it’s Volume, Pitch, and Pan and if it is too loud or soft.

Need to fade a song in or out? Need to cross fade from one song to another? Remember that Blender can animate any block. This means that you can animate the volume. Go to a frame where you want to start a fade out, place your cursor over the “Volume” block and hit “I” to insert a key, then move up in time, set the volume to zero and hit “I” again over the block. You now have a fade out.

RoboDude Asks: When I press the “Play” button or press “Alt-A”, why doesn’t my movie play at a consistent speed? It is difficult to run everything properly on the screen. Transitions need to be calculated and audio added. You could try going into “User Preferences” and the “System” tab to try to increase sequencer memory. When you crunch the movie, it will play real-time.

After you have the video completed, it is time to animate the sequence exactly like you would for any other movie made in Blender. You may need to return to the “Default” screen layout and set your render output file name/location. Finish by pressing the “Animation” Button.
Chapter 1 - The Blender Interface

This is a great exercise to end the book with. Your job is to take all of the images and movies you have created through these exercises and produce a compiled movie. I recommend making a Black JPEG image to use for your first and last image (start and end in black). Images should be displayed for approx. 3-5 seconds with 1 second transitions. When finished, go back to the Default screen and hit “Animate”.

**Call the instructor when finished**

Chapter 24 Reflection and Wrap-up: Program Interfaces and User Reactions

You have just scratched the surface of what Blender can do and the possibilities are limitless. The internet is a great place to find answers.

1. How pleased are you with the results of your final movie? What would you do differently?

2. Out of all of the activities you did in Blender, what was your favorite and why?

3. Which activity was your least favorite and why?

4. Has this experience shaped your thoughts on any future career options? Explain your answer.

5. Do you still look at movies that use animation in them the same way you did before your Blender experience? Explain your answer.