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- b. **Phase 2 – Production:** Drawing from the many climate experts at CIRES, CU, and other Colorado-based research institutes, students film interviews with content experts and stakeholders representing diverse viewpoints. The film mentors support the students in filming both the interviews and footage to intercut with interviews (B-roll). Students carefully plan B-roll filming days by identifying and scouting locations. Science and film mentors help students find existing footage, audio clips, and still images to supplement their films. This phase generally takes 3-4 meetings to complete.

Production	Estimated Time	Worksheets
Lesson 5. Interviews	1-3 hours, + possible outside time	
Lesson 6. B-Roll	1-3 hours + possible outside time	
Lesson 7. Voice-overs and Additional Footage	1-2 hours	



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Lesson 5. Interviews (1-3 hours + time to review/watch footage and take notes on "good" answers)

Overview: Have students review their storyboard before interviews and discuss what answers they need (e.g., they may need a climate scientist to specifically talk about their region's forecast). Students interview the experts and subjects they identified in the pre-production research phase. Assign roles to the students, including interviewer, cameraperson, note taker, and follow-up questioner (they listen to the answers and are required to ask follow-up questions). If your group is larger than 3-4, then assign several follow-up questioners. Note takers should write the question asked, and notes about the answer given. These notes are helpful during editing because they provide a quick reference for "good" answers and clips.

Learning Objectives:

- Students will develop questions to ask experts on their film topics.
- Students will practice interviewing each other to become familiar with their own interview style.
- Students will propose potential follow-up questions that they might ask their interviewees.
- Students will conduct interviews with their content experts.

Materials: Voice-recorders (cell-phones can also be used), camera, and microphones



Procedure:

Filming and interviewing

Depending on the topic and the film genre students pursue, films may incorporate a mix of elements such as narration, expert interview footage, student-recorded footage of local landscapes or places, existing footage or still images, and animation. Storyboards provide a useful guide as students record their footage. Students are encouraged to organize their film files in shared folders (e.g., on Google Drive). High-quality footage can be captured with cell phones, tablets, and most still cameras. Interviews with scientists increase students' understanding of climate science. Local experts (e.g., state climatologist, scientists from a local research institute) can be invited to the school for interviews or can be interviewed remotely through Google Hangouts, Skype, or other virtual connections. The virtual interview can be captured through screen capture software or integrated recording options. Some science organizations offer other opportunities to virtually connect with scientists for student interviews (see Resources).

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Lesson 6. B-Roll (1-3 hours, + possible outside time)

Overview:

B-Roll is the footage that goes over the interview footage. For example, if the interviewee talks about severe storms, the B-roll could be of dark clouds or storms. Referring to their Storyboard, students record the “shots” that are needed to make their film. Depending on the film’s story, these could be skits, dialogue between characters, or static shots. Have students review footage and take notes on their best clips or if they need to re-shoot something.

Learning Objectives:

- Students will review their film footage and identify places where additional imagery would help to provide context to their story.
- Students will use Creative Commons websites or their own footage to identify the additional imagery needed for their films.

Materials: Film recording equipment, laptops

Procedure:

Access to equipment is different for every school, but we emphasize creative ways to convey ideas or scenes with available classroom resources. Student groups can acquire film elements in various ways: through field trips to collect footage at sites away from their schools; creating whiteboard animations and drawings to depict situations that cannot be obtained through direct filming; and writing short skits that are acted out to convey ideas (see Resources). We suggest talking with students about appropriate filming locations (e.g., public spaces) and restrictions on other locations (e.g., private property without owner’s consent).



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Lesson 7. Voice-Overs and Additional Footage (1-2 hours)

Overview:

Some videos will require narration or voice-over. These are just audio files that will be combined with the video files during post production. Other videos will require footage or photos from outside sources (e.g., scientific agencies).

Learning Objectives:

- Students use their storyboards to help them determine where additional narration or voice recordings need to be made.
- Students will practice recording each other reading scripted voice-over or narration material.
- Students will review their practice recordings and modify their scripts or narration styles to improve their message.
- Students will record final voice-over and narration material.

Materials: Audio recorders or cell-phones, laptops

Procedure:

As with interviews, voice-over and narration footage should be scripted and practiced, and several takes of each piece will likely be required. Students may also wish to include existing footage from other sources. Mentors and teachers can help students identify and download public domain files for this purpose (see Guide to Creative Commons).

