

Storming the Castle

A Museum Theater Program

Script by Molly Ritchie, Science Museum of Minnesota



SETTING:

Mad Scientist's Lab (the type seen in James Whale's 1931 *Frankenstein*:

<https://www.youtube.com/watch?v=1qNeGSJaQ9Q>)

CHARACTERS & COSTUMING:

- Doctor: Classic Mad Scientist type along the lines of Colin Clive or Peter Cushing as Dr. Frankenstein (<https://www.youtube.com/watch?v=xos2MnVxe-c>); lab coat, safety glasses, gloves, etc.
- Villager: 19th century Central European peasant type; cape, pitchfork, torch

SYNOPSIS:

The village brings their concerns about synthetic biology to the local mad scientist, and together they discuss the risks and benefits that this new science offers society.

SET & PROPS:

The Science Museum of Minnesota created a simple cloth backdrop with a large window opening. This allowed for a trunk-like piece representing the woolly mammoth to pass through at the very end. A stool and table was set in front, the table included "laboratory" items:

- Various sized beakers filled with brightly colored water (food coloring)
- Test tubes and rack
- A skull

Other props included:

- A medium-sized FedEx shipping box
- A coffee mug
- Optional: A brown woolly trunk-like piece for the woolly mammoth; this could also be represented by an elephant sound effect and the Doctor looking offstage, bracing themselves/the table as if the ground is shaking with the approaching mammoth

IMAGES:

There are a number of images that are referred to later in the script. The companion PowerPoint slide deck includes these and can be shown on a monitor during the show. If a monitor is not accessible, these images can also be printed from the slides and kept onstage for the characters to pull out. The following is the list of images and some additional suggested sources, if you prefer to not print from the slides:

- Craig Venter: <https://www.jcvi.org/about/j-craig-venter>
- DNA Printer: https://novoengineering.com/img_2680_edited-2/
- Jay Keasling: <https://chemistry.berkeley.edu/faculty/cbe/keasling>
- Scary random face:
https://commons.wikimedia.org/wiki/File:Man_with_object_in_his_ear_makes_silly_face.jpg
- iGem: the international Genetically Engineered Machine Competition:
https://igem.org/Main_Page

TIME:

- Setup: 3 minutes
- Program: 10 minutes
- Clean up: 2 minutes

SCRIPT:

Note: After the opening line the acting style should be very conversational and naturalistic to contrast with the melodramatic setting. The audience can be engaged and referred to by both characters as the larger crowd accompanying the Villager.

[SFX: Thunder]

Doctor: (entering) It's Alive. It's ALIVE!!!!!! (mad triumphant laughter)

[SFX: Doorbell]

(calling backstage) Igor? Igor, could you be an absolute peach and get that? (sits down with coffee mug) I'm super busy.

[SFX: Angry mob]

Villager: (enters with pitchfork in one hand and torch in the other) Doctor?

Doctor: Yes, good evening. Oh, it's the villagers from the valley below this gothic castle stronghold! It looks so quaint from my mountain top, like a place where gummy bears would live. Good to see you, again. How have I upset you this time? (Doctors offers to shake hands but the Villager is holding the torch in one hand and the pitchfork in the other. There is business/play between the two passing the torch and pitchfork back and forth in order to do a handshake.)

Villager: (Puts out flame by pretending to lick fingers and snuff it. Sets both the torch and pitchfork down on the table.) Well, my friends and I heard you have been playing around with (hold up flask or other "lab" items on table) synthetic biology.

Doctor: Yes I have.

Villager: Ha. So you admit it. You have been creating "Artificial Life!"

Doctor: That depends on your definition of the words...

Villager: So, you are playing god. (Both squared off in front of the table. Doctor hands pitchfork and torch to Villager and grabs back the flask the Villager is examining.)

Doctor: That seems a little extreme.

Villager: Extreme? You're the one making new forms of life.

Doctor: So, the idea of synthetic biology makes you nervous.

Villager: Yes, and it makes the village people extremely nervous. If you don't stop, we will storm this castle!

[SFX: Angry mob]

(Villager gestures to the audience to join in the angry mob cries.)

Doctor: Now, now, storming isn't really necessary. So why does synthetic biology make you and the rest of the village people so scared?

Villager: Because it's the combination of biology and engineering to create new life that doesn't already exist in the natural world. It's making synthetic life. (to the audience) Knowing that, who wants to storm the castle?

[SFX: Angry mob]

Doctor: Please don't storm. People have been making synthetic life since all the way back in 2010 when this guy, (show image of Craig Venter) Craig Venter, built a bacterium creating a whole new species from scratch, so I don't see why you are so nervous.

Villager: "All the way back?" This science is so new we have no idea...

[SFX Doorbell]

(Pause, the two look at each other.)

[SFX Doorbell]

Doctor: Could you be an absolute peach and get that? (sits down with coffee mug) I'm super busy. (Villager shrugs, exits the scene)

Villager: (offstage) Yeah, hi. Yes, he's here. Hold on. (peeks back onstage) It's the FedEx guy.
He wants you to sign for something.

Doctor: Could you be an absolute peach and sign for it? I'm super busy. (sips coffee)

Villager: (sighs, indicates his hands are full) Do you have a pen?
(Doctor puts a pen in Villager's mouth. Villager rolls his eyes and exits again. Improvised muffled conversation with FedEx guy as he removes pen from mouth, signs, wishes him well, etc.)

[SFX: whinnying horses as FedEx Guy leaves]

(Villager enters trying not to drop torch, pitchfork, pen, and FedEx package)

Doctor: Could you be an absolute peach and open it, please? (Villager shoots him an evil look)
I'm kidding. (grabs the package, examines it, is overjoyed) Oh goody! It's my DNA! (takes the package to the table)

Villager: Wait, that's DNA?

Doctor: Yes, and it's finally here!

Villager: You ordered DNA THROUGH THE MAIL??? (grabs box)

Doctor: What? (grabs box back) No! I didn't order DNA through the mail. Don't be ridiculous. I ordered it over the internet, then it came through FedEx.

Villager: (stammering, a little in shock, braces himself on the table or sits on the stool) What...
but... how...why...who...?

Doctor: OK, Village people. If you know what DNA is, raise your hand? (Get an answer from the audience) Yes, DNA is a special molecule found in all living cells. It's like the instruction manual that tells your cells what to do. DNA's instructions are written in only four letters A, T, G, and C. Say it with me now! (Have the audience make the letters ATGC with their arms in the style of the song YMCA.) Great work, you really are Village People! Well, now we have the ability to write out those four letters of DNA any way we want, send it off to one of several companies that will make that DNA to order on a DNA printer like this (show image of DNA printer) and then ship that DNA back to you all in the name of scientific progress. Oh, and money. You have to pay them money.

Villager: (standing once more) Anyone can just create and order DNA and then put it into a cell to create a new form of life?!

Doctor: Yes, given they have the money and the right tools.

Villager: For the love of science, that's terrifying! (to the audience) Should we storm this castle?

[SFX: Angry mob]

Doctor: (to the audience) Cool your jets, everyone. Look at this guy. (show image of Jay Keasling) This is Jay Keasling. He has used DNA to make one of the only effective treatments for Malaria, a disease that kills over half a million people a year. This medicine is usually hard to make, but by changing the DNA instructions in the cells the drug can be made cheaper. This could be a new way to make expensive medicine affordable for all. (to the audience) Raise your hand if you think that sounds like a good thing? See, they don't want to storm the castle anymore?

Villager: But what about this guy? (show image of scary random face)

Doctor: Aaah! (hides by table) Scary guy. I don't know who that guy is.

Villager: Oh, you don't know who that guy is? I don't know who that guy is either. You know who else doesn't know who that guy is? The FBI!

Doctor: What?

Villager: What if scary guy is able to use the tools of synthetic biology, in say his... garage, to make a whole new kind of disease-causing bacterium or virus, or change existing ones to make them even more deadly?

Doctor: (shocked) Wait, could that actually happen?

Villager: (indicating that this is a real threat) The FBI has started outreach to scientists so they will know what kind of suspicious activities to look for. And the fact that anybody with the right tools can create synthetic life is terrifying!

Doctor: Now, now. Every new technology grapples with how it will impact people.

Villager: Exactly. Who owns the technology? Who controls it? Will it create jobs or put people out of jobs? There are so many unanswered questions. (to the audience) We may have to storm this castle after all.

[SFX: Angry mob]

Doctor: Please stop with this storming business. Lots of people are using synthetic biology for good. One person is this guy (show image of Jay Keasling again), remember, Jay Keasling? His microbes eat plant material and make a diesel we could use in today's engines. Try to find a downside to that, you negative Nancy.

Villager: Ok, what about this guy? (show image of Jay Keasling again)

Doctor: Wait, that's my guy.

Villager: I know. What if his fuel-making microbes managed to get out of the lab? Not only would they be spilling fuel into the environment they would also be reproducing. What would that do to the environment? Answer that or we storm!

[SFX: Angry mob]

Doctor: I don't know the answer but I can tell you there is lots of cool stuff on the horizon... just ask these folks. (show image of iGem Competitors)

Villager: Who are they?

Doctor: These are college students at iGem: the international Genetically Engineered Machine Competition. Every year college teams from around the world compete for the best idea in synthetic biology: These students try to engineer microbes to combat disease, make building materials, detect rancid foods, and who knows what they will come up with next year? Feel better now?

Villager: It sounds like those students are doing some really good things, but there's still too many unknowns for me. (to the audience) I think I still want to storm this castle. Who's with me?

[SFX: Angry mob]

Doctor: No need for any storming. Synthetic biology is an incredibly powerful new field of science with a lot of promise. Sure, like any new science it also comes with lots of issues that impact people.

Villager: Exactly. So we have to make sure that scientists, agencies, corporations and scary guy in his garage do so responsibly. But, will you?

Doctor: Will I what?

Villager: (pointing fork at the Doctor's chest) Will you be an absolute peach and approach synthetic biology responsibly?

Doctor: I will. Cross my heart. (pushing fork away)

Villager: You better. (to the audience) Time to go home everyone. Our work here is done. We won't be storming the castle today.

[SFX: Angry mob dispersing, saddened]

Doctor: Drop by any time.

Villager: Oh we will. We've got our eyes on you, Doctor. (turning to go, then turning back) You know, you never said what you are doing with synthetic biology.

Doctor: Oh, it's nothing important.

Villager: (chuckling) You know, some think that maybe synthetic biology could be used to bring back the woolly mammoth.

Doctor: (laughing) What? We've just started on single-celled organisms. A woolly mammoth? Don't be ridiculous! Get outta here, you.

Villager: Ok, Goodnight Doctor. (exits)

Doctor: Goodnight village people!

[SFX: Door closing]

Doctor: What nice people.

[SFX: Elephant noise]

Doctor: (As a brown woolly trunk emerges from the curtain and nuzzles the Doctor) Well, look who's finally awake. You missed some really nice people. Ok, let's try to synthesize you some dinner.

END