



## Case Study #1: *To Dust* — a story of love, loss, and decomposition

Film: *To Dust*, distributed by Good Deed Entertainment  
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### INTRODUCTION

Today's students are continually bombarded with information — they have cell phones, tablets, and computers, each with multiple news, social media, entertainment, and streaming applications. We all literally have information at our fingertips, but often we do not think critically about the source, validity, or credibility of that information. It is easy to take information at face value but using critical thinking skills is imperative for being able to filter what is real and what is just for content value. What better way to practice critical thinking than to use current media?

Here, we use the movie *To Dust* as a scaffold to discuss science in cinema. The following discussion guide contains movie scenes along with scientific discussion questions and additional resources. The topic covered by this case — death — is one that we are all familiar with — at least at surface level. In our society much of the news, social media, and entertainment content we consume contains death and dying (e.g., combat-style videos games, graphic films, and even cartoons), but we often avoid thinking critically about this information. Instead of shying away, this case study tackles the topic head on, providing a way in which to discuss science, critical thinking, and death all at once. We hope this case study is a springboard for more in-depth discussions of our culture's relationship with death and the portrayal of science in cinema.

### PURPOSE & BACKGROUND

This discussion guide was created to accompany the film *To Dust* starring Matthew Broderick and Géza Röhrig. In the movie, Shmuel (Röhrig), a Hasidic cantor in Upstate New York, is distraught by the untimely death of his wife. Shmuel struggles to find religious solace and is secretly obsessing over how his wife's body will decompose. He is consumed with grief and worry. Returning to the soil — to dust — is a process required in Judaism for the individual's soul to find peace. Thus, Shmuel agonizes about how long it will take his wife's corpse to become one with the Earth. In order to help ease his mind and answer his questions about decay and decomposition, Shmuel seeks the guidance of local community college professor, Albert (Broderick). Albert is not an expert on the topic, but he agrees to help Shmuel learn about body decomposition. Together, the two embark on a darkly comic and increasingly literal undertaking into the underworld.

The *To Dust* trailer can be found here: <https://www.youtube.com/watch?v=ULfhwPTMvC4> (MPAA rating: R). Scenes and topics from this movie are used as the basis for discussion about death, dying, and the portrayal of science in cinema.

## TEACHING NOTES & SUGGESTIONS

The following document and video clips are a guide for discussion and incorporation of popular media, in this case a movie, in the classroom. The teaching guide is meant to address several of the points above, including critical thinking and scientific evaluation of media, as well as enhance content engagement. This discussion guide provides an interesting way to introduce topics — death and decomposition — that are not readily discussed in American society and are often glossed over in biology courses. By combining a movie with questions ranging from basic science (e.g., what is apoptosis) to more philosophical (e.g., what is death?) this activity will allow instructors to integrate discussions of death and critical thinking into the classroom.

The format of use is up to the individual instructor, but the author envisions that this document will be used as a guide for class and small-group discussion. Below, there are several topic questions with a range of sub questions and related resources. Depending on the nature of the course, and the age of pupils, it is reasonable to omit some questions and to add others. Instructors are encouraged to use what is relevant and to add their own contributions, including possible homework assignments or worksheets.

To help instructors guide students, a list of resources, including relevant books and websites/media, is included at the end of this document. Instructors may want to assign some of the background reading or video clips as homework, or they may choose to make the resources available during class. It may also be useful to make an in-class worksheet to accompany the discussion. Specific book chapters and media clips are suggested for several of the discussion points below. Instructors are, of course, welcome and encouraged to add additional helpful sources relevant to their course, syllabus, and learning goals.

***Disclaimer*** – Some of the sources provide graphic details and images; instructors should screen those sources prior to use and determine what is appropriate for their students’ age and maturity.

## SUGGESTED AUDIENCE

This discussion guide was created for use in high school and introductory college-level courses. This case would be appropriate for a variety of course, including: introductory biology; forensic science; research methods; gerontology; anatomy & physiology; aging/lifespan; religion; media communication; and film study.

## PRIOR KNOWLEDGE AND STUDENT PREPARATION

Prior to implementing this activity, students should have basic background knowledge of cellular life, a general definition of death, and some knowledge of the scientific process. It is not necessary for students to be directly familiar with the various cultural customs surrounding death, nor do they need to have an extensive knowledge of the biochemical processes that occur during decomposition. Much of the needed information is meant to be discovered during the lesson by using group discussion and small-group investigation.

## INSTRUCTOR PREPARATION

Prior to introducing this discussion topic, the instructor should be comfortable with the topics of death and dying and should be knowledgeable about various cultural and religious norms surrounding death. Having a good background in cellular aspects of life (e.g., apoptosis, necrosis, oxidative phosphorylation) and the general processes that occur when a person dies is desirable. It is recommended that instructors see the movie before using the clips (although, this is not necessary). Additionally, instructors may want to visit the website *The Order of the Good Death*, and will likely find the following books great preparatory materials: *From Here to Eternity* by Caitlin Doughty, *Stiff* by Mary Roach, *Being Mortal* by Atul Gawande, and *Smoke Gets in Your Eyes* by Caitlin Doughty. Lastly, familiarity with the scientific method and experimental design are necessary.

#### LEARNING TARGETS

- Reflect on one's understanding of death and death rituals
- Be able to define life and death, biologically
- Be able to explain the steps that occur to/in a body following death
- Practice experimental design skills
- Explore cultural differences in practices and customs surrounding death
- Compare and contrast cultural differences in death, death rituals, and burial practices

#### KEY WORDS

Death; dying; decomposition; funeral; ritual; soul; culture; corpse; grave

To Dust – Discussion Guide

Part I – Background Questions

1. Biologically speaking, what does it mean to be alive?
  - General discussion of living organisms (e.g., use energy, grow, reproduce, etc.)
  - Have students build their definition of alive — compare and contrast living and non-living things, see if they come up with the characteristics that define life.
  - Instructors may want to expand the question outside of biology, depending on the course
  - OPTIONAL SOURCE(S):
    - *What Does it Mean to Be Alive?* (webpage)
  
2. Ask students to define the following terms:
  - ATP
  - Mitochondria
  - Oxidative phosphorylation
  - Senescence
  - Necrosis
  - Apoptosis
  - Organ death
  - Somatic death
  - Organ failure
  
3. What does it mean to die? Is this definition the same for all living things?
  - Ask students to work together to come up with definitions or criteria — they may come up with biological and/or spiritual answers. Instructors can add in questions to help guide student thinking. Use the definitions from the question above; get into brainstorming about what physiological systems are critical to maintain life (i.e., oxygen delivery — cardiovascular system; ATP production — the mitochondria). What about for plants? Bacteria? What about perennial plants or animals that hibernate or use torpor?
  - Could add some history of the understanding of human physiology – vitalism, humors, lifeblood, chi, the soul – e.g., the 21 grams theory, etc.
  - OPTIONAL SOURCE(S):
    - *At What Moment Are You Are Dead* – TED-Ed video
    - *Chapter 8: How To Know If You're Dead from Stiff*
    - *5 Stages of Psychogenic Death or 'Give-up-itis'* (article)
  
4. How have recent advances in medical care changed what it means to be dead? Do you think people back in the early 1900's had the same definition for death as we do today — why or why not?
  - What does it mean if someone is on a ventilator and not able to breathe on their own? What about the use of defibrillators? What about comas or vegetative states that occur with brain damage? What criteria should or could be used to determine if an individual is alive or dead, medically.
  - OPTIONAL SOURCE(S):

- *Medical Definition of Death* (webpage)
  - *Definitions of Death: Brain Death and What Matters in a Person* (article)
  - *When Am I Dead?* (podcast)
  - *Why Brain Death is Considered Death and Why There Should Be No Confusion* (article)
  - *After Death, You're Aware that You've Died, Say Scientists* (article)
  - *Are They Dead Yet? Experts Come Together to Define the Exact Moment we Die* (article)
  - *What Does 'Dead' Mean? How Should We Define Death?* (article)
  - *Mortality* (podcast)
  - *The Human Brain is Active up to 5 Minutes After Heart Stops* (article)
5. How can organs be transplanted after the donor has died? Don't the organs die, too?
- OPTIONAL SOURCE(S):
    - *What Exactly Happens When an Organ Donor Dies?* (article)
6. Picture a scene in nature — it could be the ocean, the forest, the desert, or somewhere else; what do you see? Likely, you do not see any dead animals. Why is this? What happens to animals when they die?
- Discuss ecological niches and nutrient cycling.
  - Could discuss the major chemical and elemental components of living organisms.
  - Does this process apply to humans? Why or why not?
  - OPTIONAL SOURCE(S):
    - *Whalefall Study* (Wildlife Documentary)
    - *Decomposers and Scavengers* (Wildlife Documentary)
    - *Scavengers of the Savannah* (Wildlife Documentary)

## Part II – Movie Clips & Questions

The following questions are meant to accompany a specific scene from the movie, the link to which is included below. The password to all videos is “lesson”.

1. Scene: the movie trailer - <https://www.youtube.com/watch?v=tWnO8oivMJg>
- How do we, as individuals and society, determine what is acceptable, “normal,” and customary for how we handle death and the dead?
  - How do different religions and cultures deal with or approach death? Do they all have the same beliefs and customs?
    - Ask students to work in groups and discuss or list the death and burial customs they are familiar with. Likely, students will not be familiar with that many. Instructors may want to specify if students should discuss customs in dealing with grief, the corpse, or with the funeral process/death ceremony.
    - May want to assign different student groups different cultures and/or religions, for example: Catholic, Jewish, Muslim, Christian, Hindu, Buddhist, Wari (funeral cannibalism), Mexico (Dia de los Muertos/Santa Muerte), Bolivia (the ñatitas of La Paz), Tana Toraja (Ma'nene), Parsi (towers of silence), Tibet (sky burials), etc.
  - What is Hasidic Judaism?

- What are the Jewish rituals and customs surrounding death and burial?
  - OPTIONAL SOURCE(S):
    - *From Here to Eternity* (book; all chapters)
    - *Smoke Gets in Your Eyes* (book)
    - *Memento Mori: The Dead Among Us* (book)
    - *The Empire of Death* (book)
    - *Heavenly Bodies* (book)
    - *Archaeologists Identify Oldest Known Human Burial in Lower Central America* (article)
    - *Basic Laws of a Jewish Funeral* (webpage)
    - *Jewish Burial Customs* (webpage)
    - *Death and Mourning* (webpage)
2. Scene: “Pig Decomposition” — <https://vimeo.com/312828654> PW: lesson
- Ask students to define terms and steps associated with decomposition
    - Autolysis
    - Bloat
    - Active Decay
    - Skeletonization
    - Rigor Mortis
    - Algor Mortis
  - Why does the body decompose? As in, what is doing the decomposition?
    - Students can hypothesize in groups and can discuss the microbes associated with the human body (those within the body and on the body). Also discuss the insects that arrive to help with the process.
  - OPTIONAL SOURCE(S):
    - *Chapter 3: Life After Death* from *Stiff*
    - *I Contain Multitudes* (book)
    - *Human Body Decomposition* (book)
    - *What Are the Four Stages of Human Decomposition?* (webpage)
    - *What Happens to the Body after Death?* (webpage)
    - *Life after Death: The Science of Human Decomposition* (article)
    - *Beyond the Grave — Understanding Human Decomposition* (article)
    - *Could Detectives Use Microbes to Solve Murders?* (article)
    - *I Contain Multitudes* (HHMI series)
    - *Forensic Entomology: Applications and Limitations* (article)
3. Scene: “Just shrouds?” <https://vimeo.com/312829355> PW: lesson
- What does the Jewish religion require in terms of body preparation and timeline after death?
  - This body was not preserved and was wrapped in simple linens. Some bodies are embalmed. Describe the process of embalming.
  - What is the purpose of the chemicals in the embalming fluid? What do they do, chemically?
  - Why would the way in which a body was prepared prior to burial impact decomposition? Think about preservatives and microbes and insects.

- OPTIONAL SOURCE(S):
  - *The Order of the Good Death — Embalming* (webpage)
  - Ask a Mortician — *What Happens to a Body during Embalming?* (video blog)
  - Ask a Mortician — *Is Embalming Dangerous?* (video blog)
  
- 4. Scene: “Casket Showroom” — <https://vimeo.com/312827722> PW: lesson
  - Could a decomposing body explode? Why or why not? Hypothesize what would have to happen, biochemically, for this to occur. Think about the byproducts of microbial metabolism.
  - OPTIONAL SOURCE(S):
    - *Order of The Good Death — Ask a Mortician – Exploding Caskets* (video blog)
    - *Chapter 10: Grave Errors — Exploding Corpses, Flaming Formaldehyde, and Other Funeral Fatalities* from *The Victorian Book of the Dead* (book)
  
- 5. Scene: “Bring me some soil from her grave.” — <https://vimeo.com/312828164> PW: lesson
  - Here, Albert is asking Shmuel to bring him dirt from where his wife is buried. Why would this be important for understanding decomposition?
  - OPTIONAL SOURCE(S):
    - *What is in Soil?* (article)
  
- 6. Scene: “This is all kinds of wrong.” <https://vimeo.com/312829355> PW: lesson
  - Why does Albert say this is all wrong? What do you think he means by this?
  - For class discussion, talk about the importance of experimental design and setting the right parameters for variables and conditions.
  - Why is a pig a good substitute for a human? This would be a great place to highlight evolutionary similarity among species and to discuss why pigs are good models for humans in multiple ways.
  - OPTIONAL SOURCE(S):
    - *The Pig: A Model for Human Infectious Diseases* (article)
    - *Scientists Grow Bullish on Pig-to-Human Transplants* (article)
    - *The Scientific Process* (HHMI lesson)
    - *Introduction to Research* (website with lecture slides)
    - *Critical Thinking* (website with lecture slides)
    - *Scientific Method as an Ongoing Process* (website with lecture slides)
    - *Chapter 1: Doctor House, Meet Doctor Doolittle* from *Zoobiquity* (book)
  
- 7. Scene: “Body Farm” — <https://vimeo.com/312827516> PW: lesson
  - Do body farms really exist? (yes!)
  - Might need to provide some background on what, exactly, a body farm (or Forensic Anthropology Research Center) is and is not.
  - This would be a good place for a discussion about ethics of human experiments, informed consent (Institutional Review Boards; Belmont Report), and donating your body to science.
  - Why would body farms be useful/needed? What are the pros/cons of this type of research?

- Optional tie-in — see below citation about age at bone maturity and what that might mean for human bone identification.
- OPTIONAL SOURCE(S):
  - *Chapter 3: Life After Death* from *Stiff* (book)
  - Chapter *North Carolina* in *From Here to Eternity* (book)
  - *Prologue: The Woman in the Photograph* from *The Immortal Life of Henrietta Lacks* (book)
  - *Chapter 17: Illegal, Immoral, and Deplorable* from *The Immortal Life of Henrietta Lacks* (book)
  - *Afterword* from *The Immortal Life of Henrietta Lacks* (book)
  - *The Body Snatchers: Corpse and Effect* (article)
  - *'Body Farm' Yields Data on Decomposition, Death* (article)
  - *Texas Body Farm Produces Rotten Knowledge* (article)
  - *Visiting Tennessee's 'Body Farm'* (article)
  - *To Solve Gruesome Desert Mysteries, Scientists Become Body Collectors* (article)
  - *Texas State Forensic Anthropology Center* (webpage)
  - *University of Tennessee Forensic Anthropology Center* (webpage)
  - *Western Carolina Forensic Osteology Research Station* (webpage)
  - *Today's Children Reach Bone Maturity Earlier, Study Reveals* (article)
- 8. Scene: “Dirt Experiments” — <https://vimeo.com/312828235> PW: lesson
  - Start with a discussion of the scientific method — is this a good experimental design? Why or why not?
  - What do you think they are testing for? Why? (Circle back to earlier question on why dirt matters.)
  - Ask students to design a better, more scientific experiment about a question related to the soil. (See *Science Friday* link below for conducting an in-class experiment.)
- OPTIONAL SOURCE(S):
  - *The Scientific Process* (HHMI lesson)
  - *Introduction to Research* (website with lecture slides)
  - *Critical Thinking* (website with lecture slides)
  - *Scientific Method as an Ongoing Process* (website with lecture slides)
  - *Smell That? It's Forensic Entomology At The Body Farm* (article with in-class experiment)
- 9. Scene: “Gravediggers” — <https://vimeo.com/312827885> PW: lesson
  - Based on the timeline of the movie, it is likely that Shmuel's wife has been buried for at least 4 months. Is the scene you just watched biologically representative? Why or why not?
  - If you are not sure, what type of data could be used to arrive at an answer? (Back to the anthropological research centers, aka body farm, question.)
  - The body was not preserved and was placed in basic linens in a wooden casket with holes — it would have undergone at least some form of decomposition or molding by now, and it would likely smell.
  - Could use historical approach to discuss digging up bodies (e.g., New York Medical Riots in the 1780s) – see books below.

- This would be a good scene for discussion of aversion to chemicals associated with decay and decomposition (this aversion is evolutionarily conserved across many species – except, of course, in species that eat carrion).
- Students could look up the below and describe what they smell like
  - Cadaverine
  - Putrescine
  - Skatole
  - Indole
  - Hydrogen sulfide
  - Methanethiol
  - Dimethyl disulfide
  - Trisulfide
- An optional activity would be to order some of these compounds (Fisher Scientific and other websites sells many of them, for example) for students to smell, but that would be some serious investment in this type of discussion!
- OPTIONAL SOURCE(S):
  - *Dead Body Smell — 6 Common Body Decomposition Smells* (article)
  - *Chapter 2: Crimes of Anatomy* from *Stiff* (book)
  - *Smoke Gets in Your Eyes* (book)
  - *The Butchering Art: Joseph Lister’s Quest to Transform the Grisly World of Victorian Medicine* (book)
  - *Chapter 4: The Trades of Woe: Undertakers, Grave-diggers, and Dead-Men’s Razors* from *The Victorian Book of the Dead* (book)
  - *The Era of Body Snatchers* (article)
  - Fisher Scientific
  - EliteK9.com — Sigma Pseudo corpse scent 1 set

10. Scene: “Maybe you should have more children?” — <https://vimeo.com/312828558> PW: lesson

- What are the stages of grief?
- Is there any one right or wrong amount of time for grieving? Individual variation in processing of extreme sadness/loss/etc.
- How do different cultures handle grief after the passing of a loved one?
- OPTIONAL SOURCE(S):
  - *Dear Therapist: Will I Ever Get Over my Wife’s Death?* (article)
  - *Grief: Coping with the Loss of your Loved One* (article)
  - *The Order of the Good Death – Death Positivity in the Face of Grief* (article)
  - *The Order of the Good Death – Grief Talk* (article)
  - *The Psychology of Grief: Cultural Differences in Death and Dying* (book)

### Part III — Additional Questions

This movie portrayed a simple burial where the deceased was washed, wrapped in cloth, and buried in a wooden coffin. In the United States, burial and cremation are the two most common practices. But there are multiple other ways in which cultures, religions, or regions deal with the deceased. Below are some of the different methods. Look up the following to get an idea of the breadth of practices that are used around the globe (and close to home).

11. Look up the following:

- Burial
  - Green burial
  - Untreated casket (like this movie)
  - Embalmed
  - Mausoleum
  - Tomb/crypt
  
- Cremation
  - Open air pyre
  - Conventional American cremation
  - Cremation in Japan
  - Floating cremation (Bali)
  - Cremation on the Ganges
  
- Others
  - Composting
  - Sky burial (Tibet)
  - Tower of Silence (Parsis)
  - Plastination (Body Worlds exhibit)
  - Mummification (Ancient Egypt)
  
- Positive Death Movement
- Death Doulas, Hospice, and Palliative Care
  
- OPTIONAL SOURCE(S):
  - *Chapter 11: Out of the Fire, Into the Compost Bin* from *Stiff* (book)
  - *Washington Legislation would Legalize Composting Human Remains* (article)
  - *The Pyres of Varanasi: Breaking the Cycle of Death and Rebirth* (article)
  - *Learning to Serve the Dying* (article)
  - *Cremation, Burial or Body Farm?* (article)
  - *I Plan People's Death for a Living – Last Look* Episode (video)
  - *The Lonely End* (article)
  - *Recompose* (website)
  - *Parts Unknown* — Season 12, Episode 3: Balinese cremation (TV)
  - *Old Age is a Ceremony of Losses* by Paul Szynol (video)
  - *Unfiltered: Donald Hall on the Contraries of Old Age* (article)
  - *Caitlin Doughty: What's Wrong With The Way We Bury The Dead?* (Podcast)
  - *Being Mortal* (book)
  - *Body Worlds* (website and museum exhibit)
  - *Smoke Gets in Your Eyes* (book)
  - *From Here to Eternity* (book)
  - *Memento Mori: The Dead Among Us* (book)
  - *The Empire of Death* (book)
  - *Heavenly Bodies* (book)

- *The American Way of Death* (book)
- *How We Die* (book)

## REFERENCES & RECOMMENDED SOURCES

### Books

- *Stiff: The curious lives of human cadavers* by Mary Roach
- *Smoke Gets in Your Eyes* by Caitlin Doughty
- *From Here to Eternity* by Caitlin Doughty
- *Human Body Decomposition* by Jarvis Hayman and Marc Oxenham
- *Memento Mori: The Dead Among Us* by Paul Koudounaris
- *The Empire of Death* by Paul Koudounaris
- *Heavenly Bodies* by Paul Koudounaris
- *I Contain Multitudes* by Ed Yong
- *The Immortal Life of Henrietta Lacks* by Rebecca Skloot
- *Being Mortal* by Atul Gawande
- *Zoobiquity: The astonishing connection between human and animal health* by Barbara Natterson-Horowitz, M.D. and Kathryn Bowers
- *The Butchering Art: Joseph Lister's quest to transform the grisly word of Victorian Medicine*
- *The Victorian Book of The Dead* by Chris Woodyard
- *The American Way of Death* by Jessica Mitford
- *How We Die* by Sherwin Nuland
- *The Spirit Catches You and You Fall Down* by Anne Fadiman
- *The Death of Ivan Ilyich* by Leo Tolstoy
- *The Poisoner's Handbook* by Deborah Blum
- *Do No Harm* by Henry Marsh
- *Dr. Mutter's Marvels* by Cristin O'Keefe Aptowicz

### Websites, Digital Articles, and Media

- *What does it mean to be alive?*
  - <https://sites.google.com/site/scilearncenter514/life-science/learning-study-pages/ecology/producers-and-consumers/what-does-it-mean-to-be-alive>
- TEDED Talk: *At What Moment Are You Dead?* By Randall Hayes
  - <https://ed.ted.com/lessons/at-what-moment-are-you-dead-randall-hayes>
- *5 stages of psychogenic death or 'give-up-itis'* By Paul Ratner, October 2, 2018
  - <https://bigthink.com/mind-brain/can-you-die-from-giving-up>
- *Medical Definition of Death* (webpage)
  - <https://www.medicinenet.com/script/main/art.asp?articlekey=33438>
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- RadioLab – *When Am I Dead?* WNYC Studios, July 26, 2009

- <https://www.wnycstudios.org/story/91681-when-am-i-dead>
- *After death, you're aware that you've died, say scientists* By Philip Perry, October 24, 2017
  - <https://bigthink.com/philip-perry/after-death-youre-aware-that-youve-died-scientists-claim>
- *What Does 'Dead' Mean? How Should We Define Death?* January 4, 2019
  - <https://neurosciencenews.com/death-redefined-10426/>
- *Are they dead yet? Experts come together to define the exact moment we die*
  - <https://www.independent.co.uk/news/science/death-brain-death-universal-definition-diagnosis-euroanaesthesia-geneva-a7769756.html>
- Radiolab - *Mortality* [Reporter Jocelyn Ford, Leonard Hayflick, Dr. Cynthia Kenyon and Lu Olkowski]
  - <https://www.youtube.com/watch?v=n6N2clmGS84>
- *What exactly happens when and organ donor dies?*
  - [https://tonic.vice.com/en\\_us/article/zmv853/exactly-what-happens-when-an-organ-donor-dies](https://tonic.vice.com/en_us/article/zmv853/exactly-what-happens-when-an-organ-donor-dies)
- *The Human Brain is Active up to 5 Minutes After Heart Stops* by Cami Rosso, October 22, 2018.
  - <https://www.psychologytoday.com/us/blog/the-future-brain/201810/the-human-brain-is-active-5-minutes-after-heart-stops>
- Blue Planet II – *Whalefall Study* (Whale Carcass)
  - <https://www.bbc.co.uk/programmes/articles/4VnhvdmDjtF4qt5Jvr26t4l/first-whalefall-study-in-the-deep-atlantic>
- NATUREWORKS - *Decomposers and Scavengers*
  - <https://www.pbs.org/video/natureworks-decomposers-and-savengers/>
- *Scavengers of the Savannah* (Wildlife Documentary)
  - <https://youtu.be/Xrt8KIPtX0w>
- *Archaeologists Identify Oldest Known Human Burial in Lower Central America* by Meilan Solly, January 4, 2019.
  - <https://www.smithsonianmag.com/smart-news/archaeologists-identify-oldest-known-human-burial-lower-central-america-180971166/>
- *Basic Laws of a Jewish Funeral*
  - [https://www.chabad.org/library/article\\_cdo/aid/367836/jewish/Basic-Laws-of-a-Jewish-Funeral.htm](https://www.chabad.org/library/article_cdo/aid/367836/jewish/Basic-Laws-of-a-Jewish-Funeral.htm)
- *Jewish Burial Customs*
  - <https://www.jewish-funeral-home.com/jewish-burial-customs/>
- *Death and Mourning*
  - <https://www.shiva.com/learning-center/death-and-mourning/>
- *The Order of the Good Death*
  - <http://www.orderofthegooddeath.com/>
- Ask a Mortician – *What Happens to a Body during Embalming?*
  - <https://youtu.be/B5-NtLmKUDE>
- Ask a Mortician – *Is Embalming Dangerous?*
  - <https://youtu.be/p3rIc1qS258>
- *Life after death: The science of human decomposition*

- <https://www.theguardian.com/science/neurophilosophy/2015/may/05/life-after-death>
- *What Are the Four Stages of Human Decomposition*
  - <https://www.aftermath.com/content/human-decomposition/>
- *What happens to the body after death?*
  - <https://www.medicalnewstoday.com/articles/321792.php>
- Vass, A. A. (2001). Beyond the grave-understanding human decomposition. *Microbiology today*, 28, 190-193.
- *Could Detectives Use Microbes to Solve Murders?*
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  - May need to get access to full episode

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