

## Why don't birds get electrocuted? ;)

- Birds don't get electrocuted because they aren't attached to the ground. But, if a bird touches two different wires at once, it would get electrocuted. Also, the bird would get electrocuted if it touches something on the ground, like a pole. This is because two different wires can have two different strengths of electricity. Electricity likes to make things easy, so it will try to share energy across the two wires if something is touching both of them. [Reference](#)
- The way to remember how electricity travels from one point to another (such as along a wire), is that electricity is incredibly lazy – it will always take the easiest route!
- In physics we say that electricity (or current) travels from the point of **highest potential** to **lowest potential**. You can think of **how electricity travels** through an object as dropping a ball on the side of a mountain. The ball is like the current, it will always fall down the mountain. The ball will never fall up the mountain. In a wire, one end of the wire is at a different potential than the other, so the electricity wants to travel along it. As both of the bird's feet are on the same wire, there is no difference in potential between them (imagine the bird as a flat part of the mountain, where the ball will neither fall up or down the mountain). The electricity will prefer to continue travelling along the wire, rather than passing through the bird.
- Imagine if you had to walk to your local shop to buy a loaf of bread. You can walk one of two possible routes: along a nice flat footpath or through a muddy, boggy, waist deep swamp. You'd probably choose the footpath, because it's much easier to walk along it. This is what electricity does, it travels along the easiest path, which we call the path of least resistance. Engineers specifically design wires so that it is very easy for electricity to travel down them. Our bodies and birds bodies on the other hand offer a lot of resistance to the electricity travelling down them. The electricity therefore will preferentially continue travelling down the wire, as it's an easier route for it to take, rather than passing through the bird.
- It is these reasons why our feathered friends can happily sit on power lines without getting shocked! [Reference](#)
- So **how do workers repair live electrical wires** without getting hurt? They use **insulating materials** in their clothing, equipment, and bucket trucks. Insulating materials such as rubber are materials through which electricity has a hard time flowing. So instead of passing through the electrician, the electrons stay on the other side of his rubber gloves or rubber-handled tools. (Keep in mind: these aren't everyday household gloves and tools — those are too thin to protect you from a shock and are often not made entirely of rubber) Another technique is to **hang beneath a helicopter**. Since neither the worker nor the helicopter is connected to the ground (like a bird), the worker just has to make

sure he **only touches one wire at a time**. Despite continual safety improvements, being a power linesman is still one of the ten most dangerous jobs in America. So, it's a good idea to stay away from electrical wires unless you're a trained professional — or a bird.

[Ref](#)

- Electricity flows by the movement of electrons through conductors. The copper wire in electrical wires is a great conductor of electricity. Copper allows electricity to flow easily along its surface.
- Electricity flows along the path of **least resistance**. Birds don't get shocked when they sit on electrical wires because they are not good conductors of electricity.
- Their cells and tissues do not offer electrons an easier route than the copper wire they're already traveling along. As a result, the **electricity bypasses the birds** and keeps flowing along the wire instead.
- Another reason why electricity will bypass a bird sitting on a wire is because there's **no voltage difference in a single wire**. For electrons to move, there must be what scientists call a difference in electrical potential. For example, electricity flows from areas of high voltage to areas of low voltage. Electricity flowing through a single power line at 35,000 volts will continue along the path of least resistance and bypass birds, because there's no difference in electrical potential.
- If the bird would **touch the ground while sitting on the wire or flap its wings and touch another electric wire with a different voltage**, then it would get shocked and likely die by electrocution. This is because its body would become a path for the electricity to **reach either the ground (no voltage) or a place with a different voltage** (another wire at a different voltage, for example). This is why power lines tend to be high in the air with **plenty of space between the wires!** [Reference](#)
- What is electric potential energy [youtube link](#)
- What is voltage [youtube](#)
- Electrocution (human)[youtube](#)
- Fun and interesting explanation of why he didn't get electrocuted [youtube](#)

What - happens when u touch power wires, Is electricity, is the solution to decrease the number of death

when - does bird get electrocuted on rainy days/sunny days

who - the birds on the electric cables

where - incident happens, can electric cables be found

why - birds won't get electrocuted

How - electric current & circuit works? (explain)

## Data (statistics):

[How many people are affected by electrocution?](#)

[Bird deaths and solution](#) but it's death is mainly due to collision

[How does electrocution kill you?](#)

[Electrocution of Raptors on Power Lines](#)

[Electrocution of birds and collision with power lines: Solutions to a global problem](#)

[33,000 birds of prey die each year because of electricity wires](#)

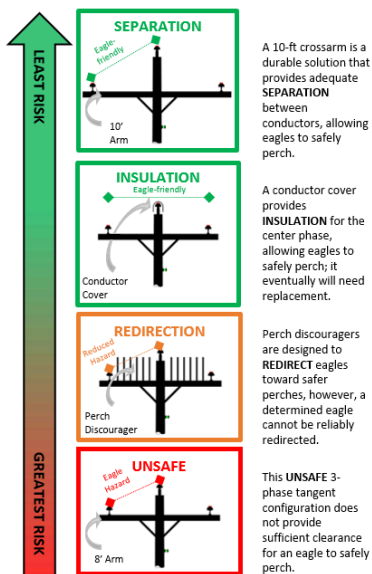
[Factors of birds getting electrocuted & solutions](#)

## Solution:

[Insulators](#)

[Prevent Birds Electrocution](#)

[raptors mitigation](#)



**Senior's blog:**

<http://yeapphayminjessica.blogspot.com/2019/02/intercultural-design-final-project.html>

**Story Theme:** Fun/ playful/ knowledgeable

**Storyline (include funny answers before give the correct answer)**

Human intro (trying to reach for a kite getting stuck on the power cable)

Leads to bird question

Explain-

1. Resistance (higher resistance of the bird)
2. Electric potential (if the bird touches both wires)

Consequences of electrocution - death (high voltage)

Safety precautions

**5W1H:**

Who - the birds on the electric cables

What - happens when u touch power wires, Is electricity,

When - does bird get electrocuted on rainy days/sunny days

Where - incident happens, can electric cables be found

Why - birds won't get electrocuted

How - electric current & circuit works? (explain)

Reference Video:

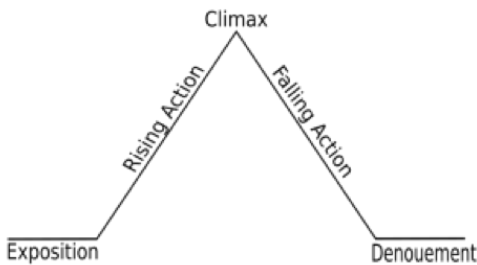
[YouTube Reference Video List](#)

[Senior's narrative](#)

[Ref. Video 1](#)

[Ref. Video 2](#)

## 5 acts



1. Exposition: Sets up the story providing any contextual background the reader needs, but most importantly it contains the inciting moment. This incident sets the story in motion. An incident forces the protagonist to react. It requires resolution, producing narrative tension.
2. Rising Action: On a simplistic level this is the obstacles that are placed in the way of the protagonists as they attempt to resolve the inciting incident.
3. Climax: This is the turning point of the story. It is the point of the highest tension. In many modern narratives, this is the big battle or showdown.
4. Falling Action: The falling action is that part of the story in which the main part (the climax) has finished and you're heading to the conclusion. This is the calm after the tension of the climax.
5. Dénouement: This is the resolution of the story where conflicts are resolved and loose ends tied up. This is the moment of emotional release for the reader.

## **NARRATIVE**

### **Scene 1 (Introduction)**

*Duration: 19 second (reading)*

*Sounds: opening of morning scene, wind blows, boy's footsteps, chirping bird,*

- Kid fly the kite, the kite stuck on the electric cable (a guide to the cable & the bird)
- Birds chirping on power line
- Focus to the kid's hand and his hand appear to pull the kite string and gets electrocuted
- The birds react to the boy by giggling/ facepalming (sound: Are birds immortal?)
- The boy answer funnily "Maybe they wear shock proof shoes!"
- The title appear "Why Birds Don't Get Electrocuted?????"

### **Scene 2**

*Duration:*

*Sounds:*

- Explain basic knowledge about how electric current & circuit works
- Intro about voltage, resistance and current flow
- Explain about the bird's body which has higher resistance

### **Scene 3**

*Duration:*

*Sounds:*

- "But the big bird does have the chance to get electrocuted because it has a higher chance to touch 2 cables (and become Kenny Rogers Roaster \*add the themed song in\*)
- bigger bird (raptors) have higher chance than the smaller bird (normal bird) \*add the data\*

## **Scene 4 (Solution + Conclusion)**

### **Last Scene;**

*Duration:*

*Sounds:*

The camera started focus away from the cable to the kite follow down the string kite > to the boy > the boy get tanned > electrocuted > he smiled heehee > one of the teeth drop > with current moving ZZzzZZ > “the end” appear > switching off tv effect .

### **Solution;**

*Duration:*

*Sounds:*

- So what can we do to mitigate the number of raptors died with electrocution?
- Replace pin-type insulators to suspended ones and elongating the strings of insulators between cables + provide sufficient clearance for an eagle to safely perch (approximately 10 feet crossarm between 2 conductors)

### **Conclusion;**

*Duration:*

*Sounds:*

- Remember to always take care of our raptor friends! If you don't, you can't chirp with us!

\*insert credits\* eg: title of kids music.

\*submit google doc in google classroom comments under mr shamsul post\*