

BLACK HOLE IN THE GARDEN

HOW TO CREATE THIS EFFECT WITH STEEL WOOL

This effect creates a circle of brilliant light with sparks flying in all directions, like a "black hole" of fire in your garden.

All you need is steel wool, a wire, and a little patience.



STEP BY STEP

1 PREPARE



Get a pack of steel wool (grade #2 or #3) and make a tight ball. Attach it securely to a thick wire or chain.

2 FIND THE LOCATION



Choose an open outdoor area far from trees, houses, and anything flammable. Make sure you have plenty of space and it's safe to swing.

3 IGNITE THE WOOL



Using a long lighter or torch, ignite the steel wool at several points until it catches fire completely.

4 SPIN WITHOUT STOPPING



Hold firmly and swing in smooth, circular motions. The faster and more even you move, the better the effect.

5 POSITION THE CAMERA



Use a tripod! Long exposure settings:
– ISO 100–200
– Aperture f/8–f/11
– Shutter 5–20 seconds (start and adjust)

6 EXPERIMENT



Play with angles, distance, and speed. Include people in the scene for scale and even more impact!

RAW CAPTURES (STRAIGHT OUT OF CAMERA)



ISO 100 | f/8 | 10s
50mm | Manual



ISO 100 | f/8 | 13s
50mm | Manual



ISO 100 | f/11 | 15s
50mm | Manual

FINAL IMAGE (EDITED)



Edited in Adobe Photoshop (basic adjustments):

- Contrast
- Highlights
- Shadows
- Clarity
- Color balance
- Noise reduction

Post-processing enhances the details and the impact of the final image.

THE PHYSICS – NEWTON'S LAWS IN ACTION

This effect is not magic. It's physics! Understanding the motion of the sparks helps us create better shots and connects this experiment to what we learn in school.

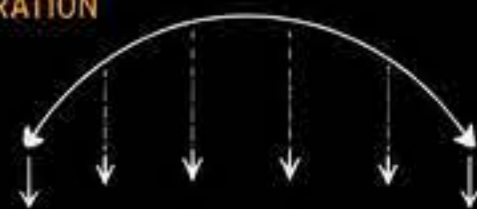
1 NEWTON'S FIRST LAW – INERTIA

Once the sparks are flung outward, they keep moving in a straight line unless a force acts on them. They keep going because of inertia.



2 NEWTON'S SECOND LAW – FORCE AND ACCELERATION

After leaving the circle, the only significant force acting on the sparks is gravity, pulling them downward. This creates parabolic paths.
 $F = m \times a$ ($a = g \approx 9.8 \text{ m/s}^2$)



3 NEWTON'S THIRD LAW – ACTION & REACTION

As we push the steel wool around, we exert a force on it, and it exerts an equal and opposite force back. This keeps the circular motion going.



Many sparks + circular motion + gravity = a beautiful "artificial black hole".

EQUIPMENT

- Steel wool (grade #2 or #3)
- Thick wire or chain
- Long lighter or torch
- Gloves & eye protection
- Tripod & camera (manual mode)
- Bucket of water or extinguisher



SAFETY FIRST – READ THIS CAREFULLY!

- NEVER spin near people, animals, or structures.
- Check the wind direction.
- Have water or an extinguisher nearby.
- Wear cotton clothing and closed shoes.
- Afterward, make sure no hot spots remain.



**FIRE IS BEAUTIFUL
BUT IT DOES NOT FORGIVE.
RESPECT IT!**

During this experiment, a spark landed on my foot, burned my sock, and burned my skin.

I should have worn boots and definitely should not have been barefoot in the garden. Learn from my mistake!

DISCLAIMER

This field experiment involves fire, hot sparks, and potential hazards. It must only be performed in open outdoor areas with proper precautions. The information shared here is for educational and documentary purposes only.

I AM NOT RESPONSIBLE FOR ANY ACCIDENTS, INJURIES, FIRES, OR DAMAGES THAT MAY OCCUR.

ALWAYS WEAR EYE PROTECTION!



Safety glasses



Tie your hair and wear a cap or helmet



Wear gloves and protective clothing

HAVE FUN, STAY SAFE, AND KEEP EXPLORING!

Photography, physics and curiosity can take you anywhere.

