

# Different Types of Lighting

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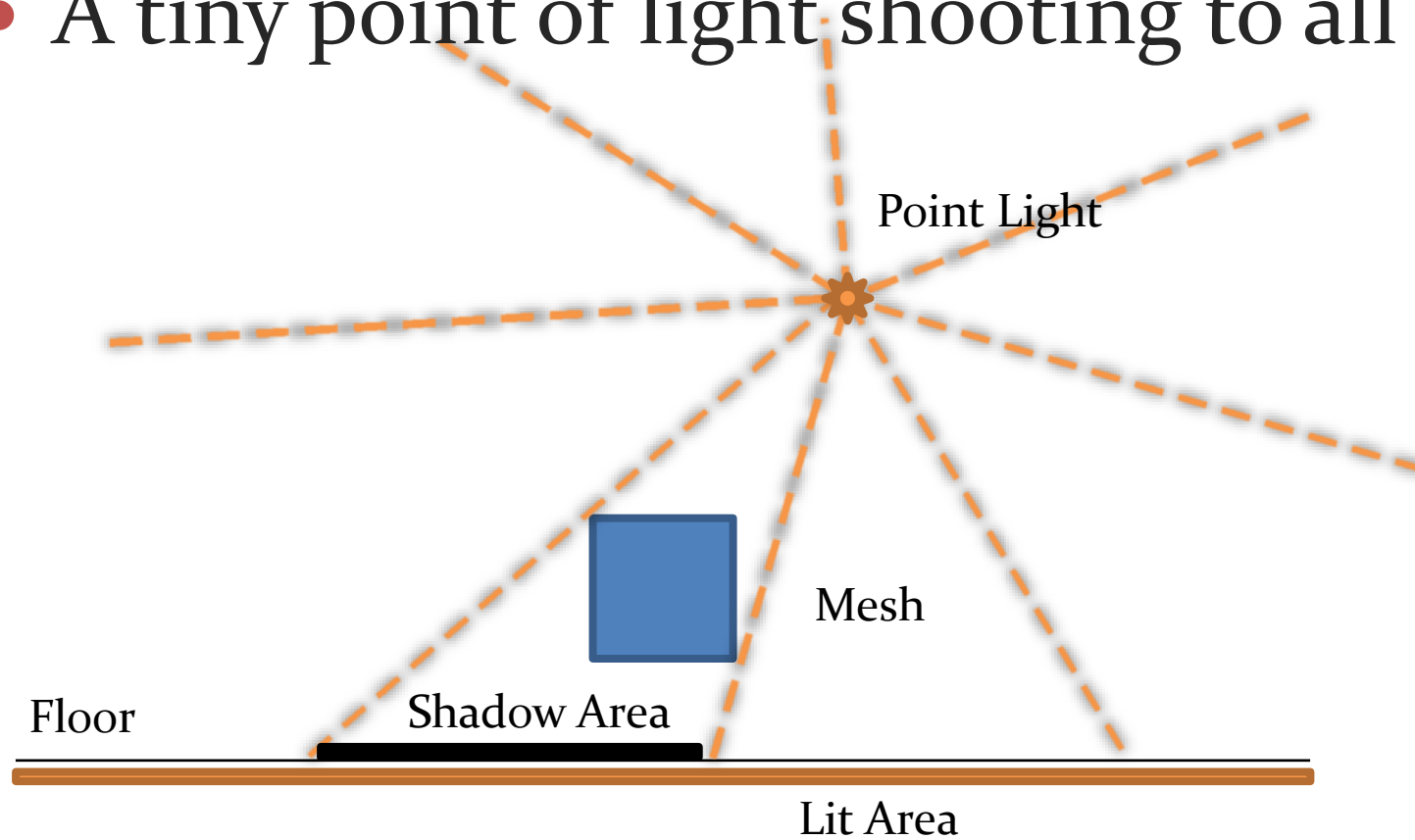
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# Point Light

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- A tiny point of light shooting to all directions



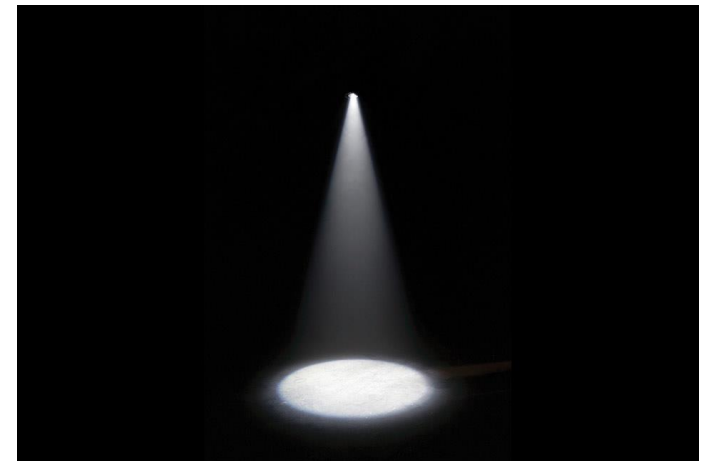
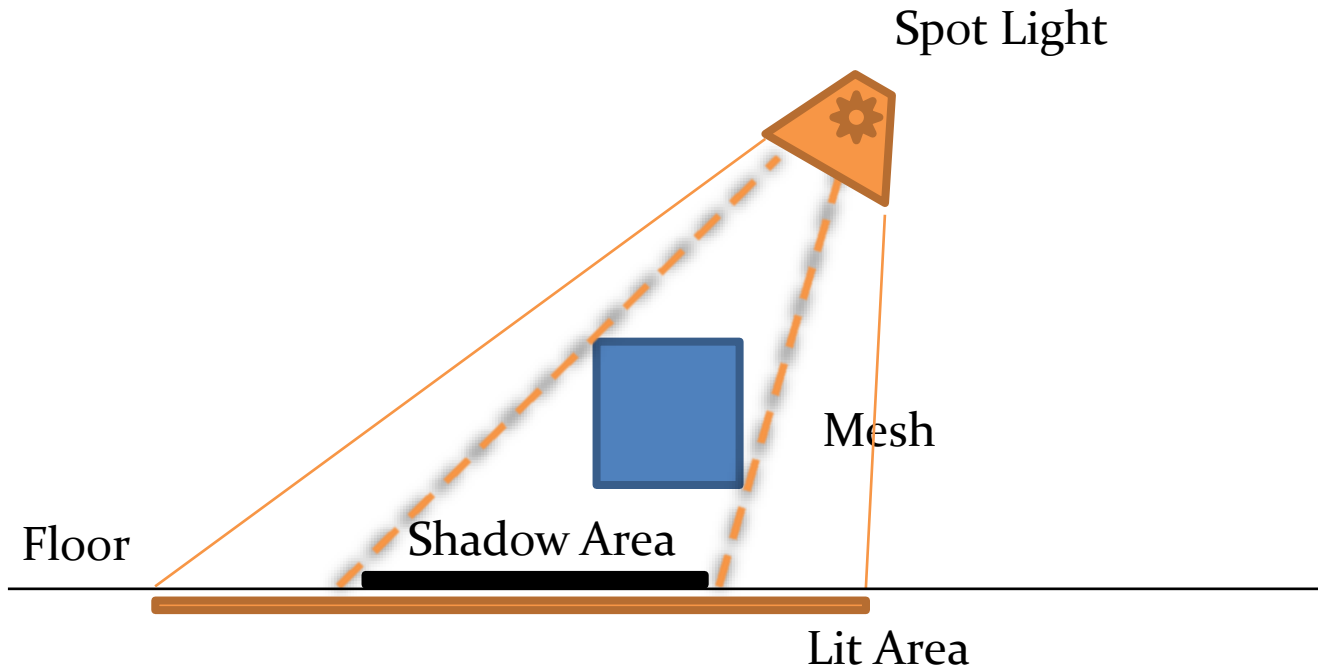
The sun can be considered as a point light if it is very, very far away i.e. becoming a single point



# Spot Light

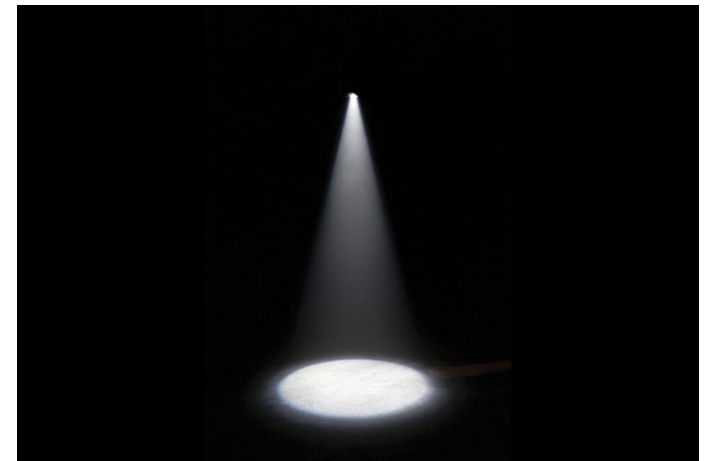
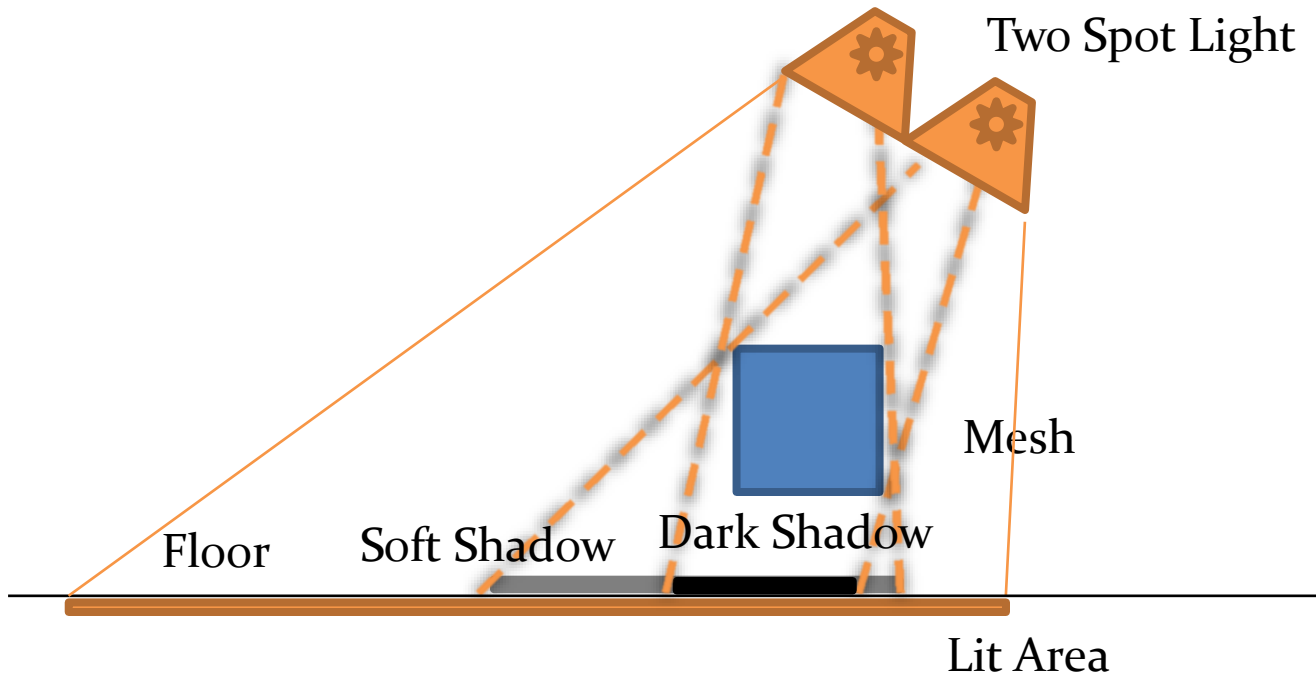
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- A tiny point of light shooting with a limited area of lighting



# Multiple Spot Lights

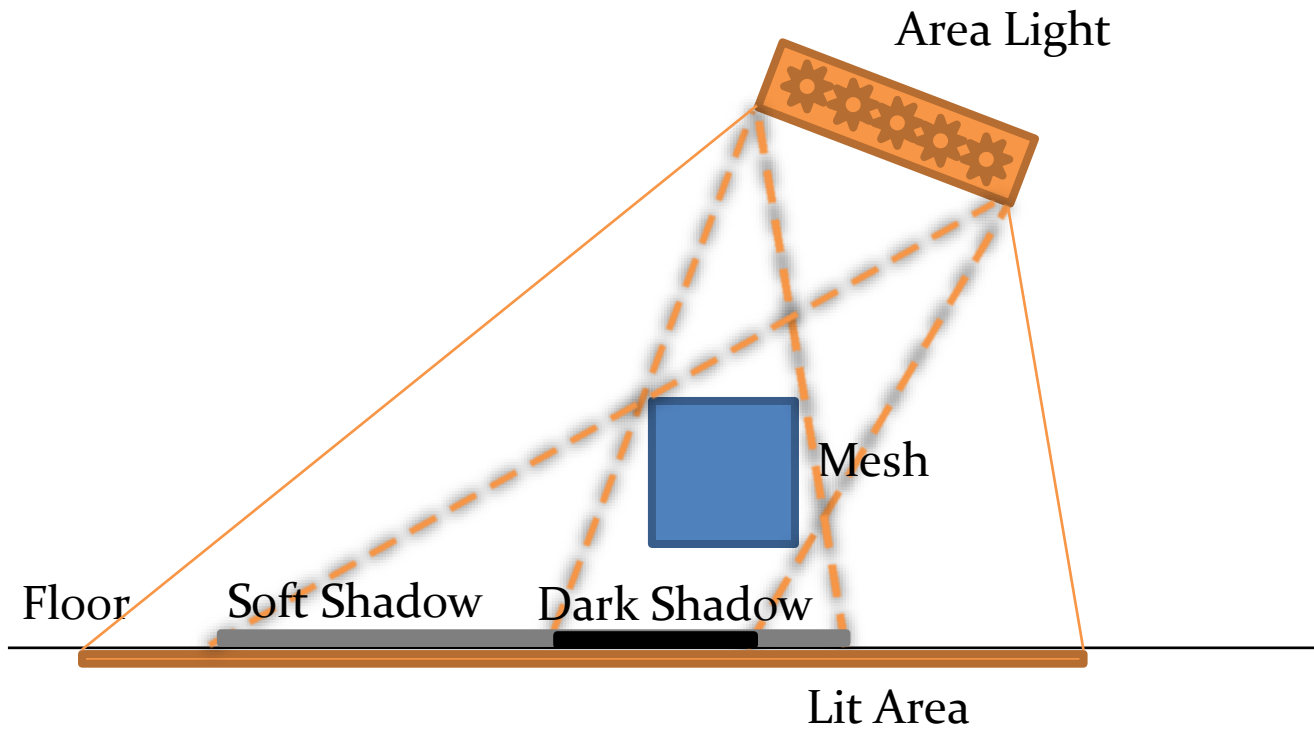
- Multiple spot lights creating soft shadows – three.js implementation



# Area Light

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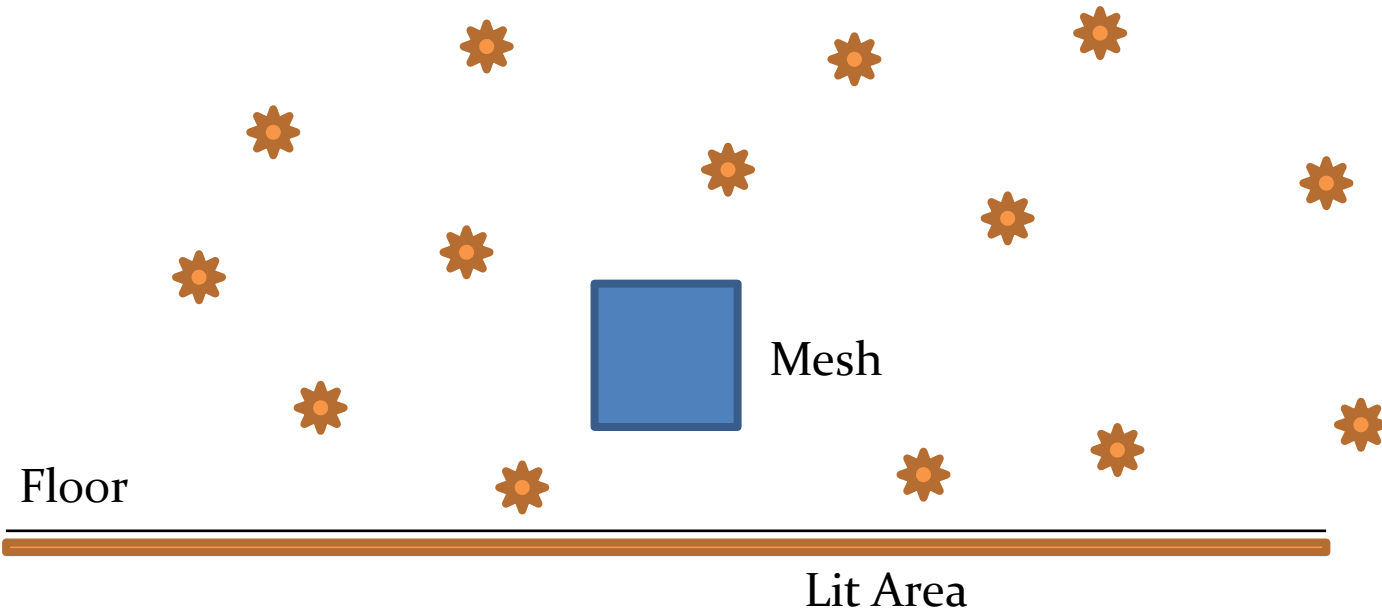
- An area of light creating soft shadows



# Ambient Light

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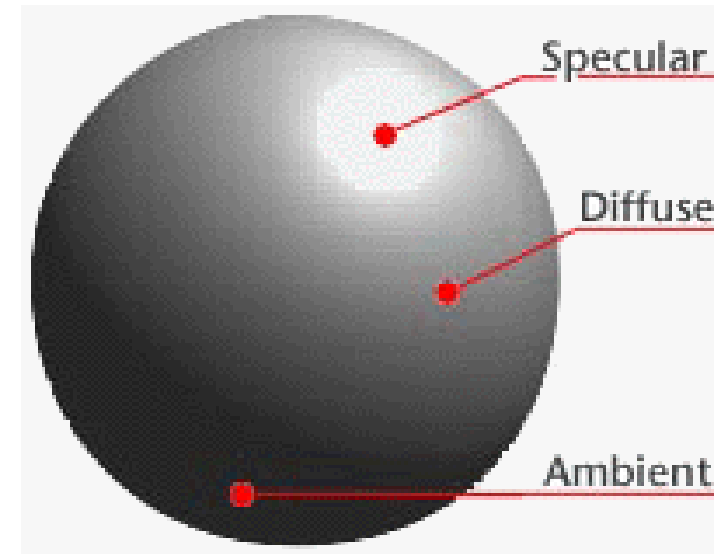
- Also considered as background light
- Light everything in all directions equally



# Lighting Components on a Mesh

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- Ambient component
- Diffuse component
- Specular component
- To be controlled by the material of the mesh



# Lighting in Three.js

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- Multiple types of light
  - AmbientLight
  - PointLight
  - SpotLight
  - RectAreaLight
  - DirectionalLight
  - Etc.



# Further Reading

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- three.js Function List & Basic Tutorials
  - <https://threejs.org/docs/#manual/en/introduction/Creating-a-scene>
- Wikipedia
  - Shadow mapping:  
[https://en.wikipedia.org/wiki/Shadow\\_mapping](https://en.wikipedia.org/wiki/Shadow_mapping)
  - Ray tracing  
[https://en.wikipedia.org/wiki/Ray\\_tracing\\_\(graphics\)](https://en.wikipedia.org/wiki/Ray_tracing_(graphics))
  - Three-point Lighting  
[https://en.wikipedia.org/wiki/Three-point\\_lighting](https://en.wikipedia.org/wiki/Three-point_lighting)

# The End

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Any Questions?