



# *Model Railroading Education Series –*

## Scale and Gauge

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*Presented by:*

*NMRA NCR 3 Rivers Division*



# Scale Model Railroading

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- **Model Railroading** is a hobby in which rail transport systems are modeled at a reduced **Scale**.
- A key point is the direct proportion to the real-world environment, the scale.
- A model railroad is a miniature version of the real world, as represented by the modeler.

# Definitions: Scale and Gauge

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- Scale – The ratio of the model size to the real thing or ‘prototype’.
- Gauge – The distance between the rails.

# History of Scale Names

(largest to smallest; oldest to newest)

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- G – German Gros meaning “big”; also Garden.
- O – “0 [zero] gauge”, smaller than Gauge 1.
- S – the Scale that is half of Gauge 1.
- OO – double-O.
- HO – Half of O; pronounced “*aitch-oh*”.
- TT – Table Top.
- N – Nine-millimeter track spacing.
- Z – last of alphabet to indicate smallest size.

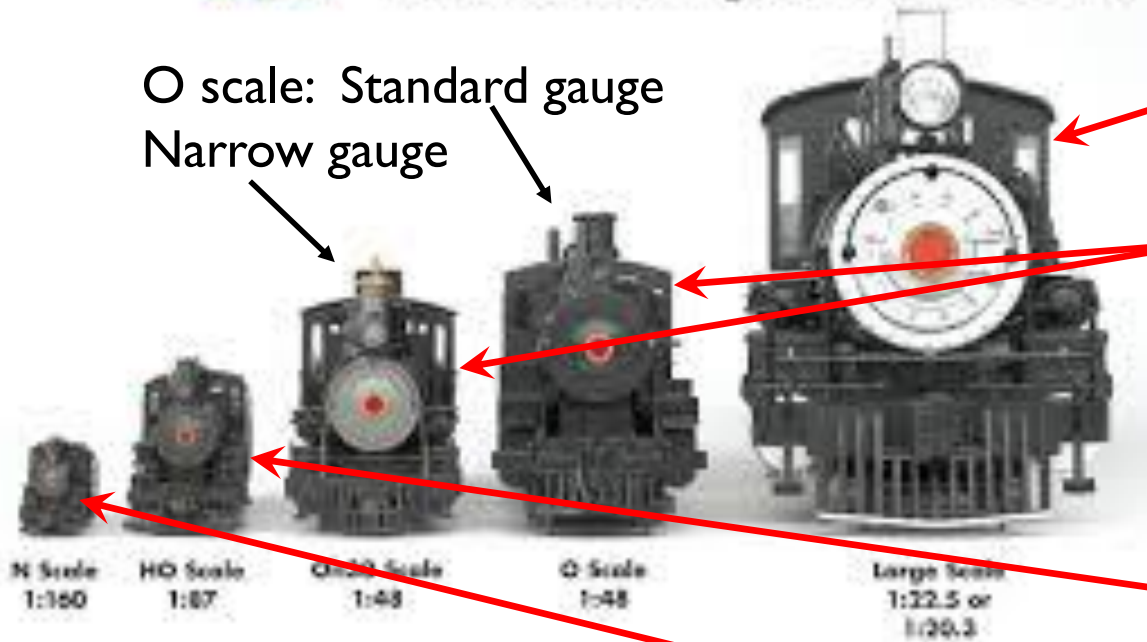


# BACHMANN

## Scale Comparison



# Scale



Scale	Ratio
G	1:24 (1:22.5)
O	1:48 (1:45.2)
S	1:64
OO	1:76.2
HO	1:87.1
TT	1:120
N	1:160
Z	1:220

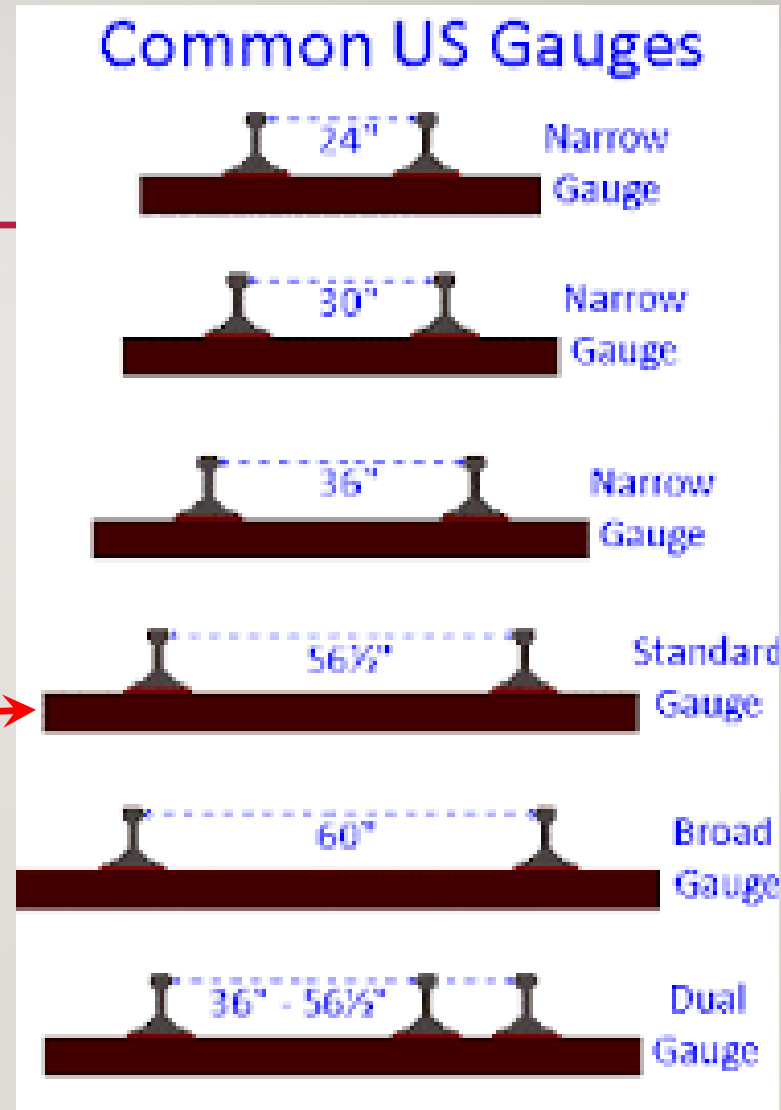
- Scale – The ratio of the model size to the real thing or ‘prototype’.

Typical 1955 prototype boxcar was 40 feet long.  
An HO scale model is about 6 inches long;  
an N scale model is about 3 inches long.

# Gauge – U.S.

- Gauge – The distance between the rails.

The U.S. standard gauge is 4 feet 8½ inches.



# Gauge – U.S. History

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- Broad gauge was used in Pennsylvania area.
- Narrow gauge was used in Maine and West Coast forests and in Rocky Mountains; narrow gauge tourist lines still run.
- In HO scale, 3-foot narrow gauge is indicated as HOn3.

# Gauge – Foreign

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Other countries have many prototype gauges, sometimes in the same location.





# Scale and Gauge

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Questions? Ask us.

National Model Railroad Association

North Central Region

3 Rivers Division

<http://div3.ncr-nmra.org/>

