Moving Averages

Smoothing Out the Noise — Lesson Explainer

The Concept

A moving average (MA) is the average closing price over a fixed number of recent periods — say, the last 50 days — recalculated fresh every day as the window moves forward. Plotted as its own line, it smooths away day-to-day zigzags to reveal the underlying trend far more clearly than raw price alone.

The most common type is the **simple moving average (SMA)**, weighting every day equally. The **exponential moving average (EMA)** weights recent days more heavily, reacting faster. Moving averages can act as **dynamic support/resistance**, and comparing a short-term average against a long-term one reveals crossover signals — the “golden cross” and “death cross.”

Real Example: The S&P 500's 2022 Death Cross and 2023 Golden Cross

Date	Close	50-day SMA	200-day SMA	Signal
Mar 14, 2022	$4,173.11	$4,463.96	$4,467.00	Death cross
Feb 2, 2023	$4,179.76	$3,953.61	$3,951.58	Golden cross

On Mar 14, 2022, the S&P 500's 50-day average slipped below its 200-day average — a death cross, arriving as the 2022 bear market was getting underway. Almost a year later, on Feb 2, 2023, the pattern flipped: the 50-day crossed back above the 200-day — a golden cross — right as the index began its recovery. Both crosses happened well after the actual price turns — that lag is the trade-off for the smoothing.

5 Things to Know

1. A moving average is a lagging indicator — it reacts to a trend change after the fact, never before.

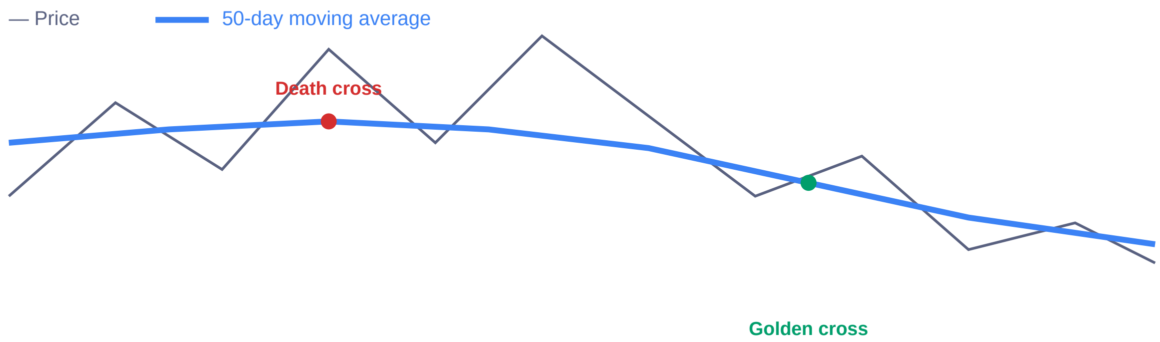
2. Shorter periods react faster but whipsaw more; longer periods are smoother but slower to turn.

3. A golden cross (short MA above long MA) is bullish; a death cross (short below long) is bearish.

4. Rising moving averages often act as dynamic support; falling ones as dynamic resistance.

5. Crosses are confirmation tools, not early warnings — a lot has usually already happened by then.

How It Looks on a Chart



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Moving Averages

Quiz — Answer the questions, then check the key on the next page

1. What does a moving average do?

A. Predicts tomorrow's exact closing price

B. Measures trading volume over a period

C. Shows the highest price ever reached by a stock

D. Plots the average closing price over a rolling window, smoothing out day-to-day noise

2. What is a “golden cross”?

A. When a stock reaches an all-time high

B. When a shorter-term moving average (like the 50-day) crosses above a longer-term one (like the 200-day)

C. When trading volume drops to zero

D. When a candlestick has no wicks at all

3. On Mar 14, 2022, the S&P 500's 50-day SMA ($4,463.96) crossed below its 200-day SMA ($4,467.00). What is this pattern called, and what does it typically signal?

A. A death cross — a classic bearish signal

B. A golden cross — a classic bullish signal

C. A doji — signaling indecision

D. A breakout above resistance

4. Why is a moving average described as a “lagging” indicator?

A. Because it only updates once a year

B. Because it's calculated from future prices, which aren't known yet

C. Because it's built from past prices, so it always confirms a trend change after it's already begun

D. It isn't a lagging indicator — it always leads price

5. What's the key trade-off between a shorter-period moving average (like 20-day) and a longer one (like 200-day)?

A. There is no trade-off — longer periods are always better

B. Shorter periods react faster to price changes but generate more false signals; longer periods are smoother but slower to turn

C. Shorter periods only work for cryptocurrencies

D. Longer periods use less historical data than shorter ones

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Answer Key

1. What does a moving average do?

Correct answer: D. Plots the average closing price over a rolling window, smoothing out day-to-day noise

A moving average recalculates the average of the last N periods every day as the window rolls forward, which is exactly what smooths out short-term jitter to reveal the underlying trend.

2. What is a “golden cross”?

Correct answer: B. When a shorter-term moving average (like the 50-day) crosses above a longer-term one (like the 200-day)

A golden cross is the short-term average crossing above the long-term average — a classic, if lagging, bullish signal, most commonly tracked with the 50-day/200-day pair.

3. On Mar 14, 2022, the S&P 500's 50-day SMA ($4,463.96) crossed below its 200-day SMA ($4,467.00). What is this pattern called, and what does it typically signal?

Correct answer: A. A death cross — a classic bearish signal

A short-term average crossing below a long-term one is a death cross, the bearish mirror image of a golden cross — exactly what happened as the 2022 bear market was getting underway.

4. Why is a moving average described as a “lagging” indicator?

Correct answer: C. Because it's built from past prices, so it always confirms a trend change after it's already begun

Since a moving average is literally an average of prior prices, it can only ever reflect what's already happened — it reacts to a new trend, it doesn't anticipate one.

5. What's the key trade-off between a shorter-period moving average (like 20-day) and a longer one (like 200-day)?

Correct answer: B. Shorter periods react faster to price changes but generate more false signals; longer periods are smoother but slower to turn

A shorter window hugs price more closely (faster reaction, more whipsaws); a longer window smooths harder (fewer false signals, but slower to reflect a genuine trend change) — there's no free lunch either way.