Schedules of Reinforcement: The Complete Study Guide

By Felicia Burgess, MS, BCBA · October 9, 2026 · 11 min read

Ever wonder why people sit at a slot machine for hours, but quit a broken vending machine after one try? The answer is a schedule of reinforcement. A schedule is simply the rule that decides *which* responses get reinforced.

Schedules show up all over the BCBA exam, and they're easier than they look. Learn two questions and you can name almost any schedule:

1. **Is it based on a number of responses (ratio) or on time passing (interval)?**
2. **Is that number or time the same every time (fixed) or does it change around an average (variable)?**

Schedule	The rule	Everyday example	What responding looks like
Continuous (CRF)	Every response is reinforced	A vending machine	Fast learning, but stops quickly when reinforcement stops
Fixed ratio (FR)	After a set number of responses	A sticker after every 5 math problems	High rate, then a pause after each reinforcer
Variable ratio (VR)	After an average number of responses	A slot machine	High, steady rate with little or no pausing
Fixed interval (FI)	First response after a set time	Checking the mailbox when mail comes at 3:00	A pause after reinforcement, then speeds up as the time gets close (a "scallop")
Variable interval (VI)	First response after an average time	Checking your phone for a text	Low to moderate, steady rate

Continuous vs intermittent: teach it, then keep it

Continuous reinforcement (CRF) means every correct response gets reinforced. It's the best choice when you're teaching something brand new, because the learner quickly connects the behavior to the outcome.

The downside is that CRF behavior is fragile. When reinforcement stops, the behavior tends to stop fast. Think of the vending machine: it doesn't deliver once, and you walk away.

Intermittent reinforcement means only some responses get reinforced. Behavior on an intermittent schedule holds up much better when reinforcement stops. This is called *resistance to extinction*, and the general finding is the **partial (intermittent) reinforcement effect**.

The practical rule: **use CRF to teach, then thin to intermittent to maintain.** Thin gradually. Jumping too fast to a big ratio can cause *ratio strain*, where responding slows down or falls apart.

The four basic intermittent schedules

Fixed ratio (FR)

Reinforcement comes after a **set number** of responses. FR 5 means every 5th response is reinforced.

- **Example:** a student earns a token after every 3 correct answers (FR 3).
- **Pattern:** a high rate of responding, then a **post-reinforcement pause** before starting again. Some people call this "break and run." The bigger the ratio, the longer the pause tends to be.

Variable ratio (VR)

Reinforcement comes after a **changing number** of responses that averages out to a set value. VR 10 might mean reinforcement after 4 responses, then 15, then 11.

- **Example:** slot machines, sales calls, asking a toddler's grandparent for candy.
- **Pattern:** a **high, steady rate** with little or no pausing, because the very next response could be the winner. Behavior on VR is very resistant to extinction.

Fixed interval (FI)

The **first response after a set amount of time** is reinforced. FI 5 min means the first response after 5 minutes have passed gets reinforced.

- **Example:** mail arrives at 3:00 every day. Checking at 1:00 gets you nothing. The first check after 3:00 pays off.
- **Pattern:** a **scallop**. Responding is slow right after reinforcement and speeds up as the time gets close.

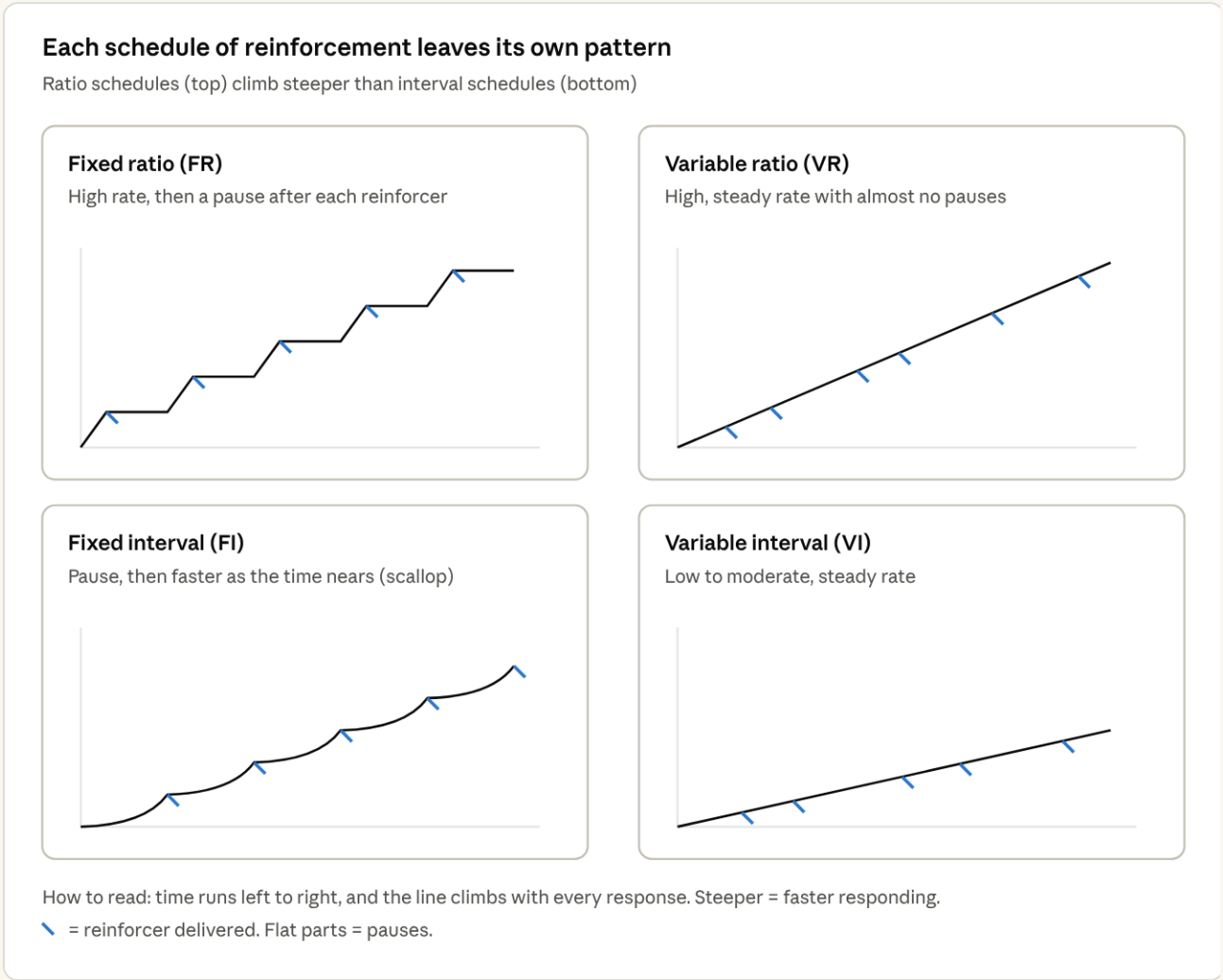
Variable interval (VI)

The **first response after a changing amount of time** (averaging a set value) is reinforced.

- **Example:** checking your phone for a reply to a text. It could come in 2 minutes or 20.
- **Pattern:** a low to **moderate, steady rate** with few pauses. Because you never know when it's "time," you keep checking at a steady pace.

Quick memory trick: ratio = *rate*. Ratio schedules usually produce higher rates than interval schedules, because responding faster gets you reinforced faster. On an interval schedule, responding faster doesn't make the clock move.

See the patterns



These are simplified cumulative records, the graph style you'll see on the exam. Flat stretches mean pauses, and steeper lines mean faster responding.

Two variations the exam loves

Limited hold (LH)

A limited hold adds a deadline to an interval schedule. Once the interval ends and the reinforcer becomes available, the person has only a set window to respond. If they miss the window, that reinforcer is lost and the next interval starts. It's written like this: **FI 5 min LH 30 s**.

- **Example:** a bus comes every 15 minutes and waits at the stop for 1 minute. Get there within that minute and you ride. Show up late and you wait for the next one.
- **Why it matters:** a limited hold usually pushes interval responding up, closer to the steady rates you see on ratio schedules, because waiting too long now costs you.

Progressive ratio (PR)

On a progressive ratio schedule, the ratio requirement **increases after each reinforcer** within a session. On a PR 2, for example, the person might need 2 responses, then 4, then 6, then 8.

- **Breaking point:** eventually the person stops responding. The last ratio they completed is the **breaking point**.
- **Why it matters:** the breaking point shows how hard someone will work for a reinforcer. A higher breaking point suggests a more powerful reinforcer, so PR schedules are used to compare reinforcers, not to teach skills.

4 exam traps people fall for

1. **"Interval means time alone gets reinforced."** No. On FI and VI, the time has to pass **and** the person has to respond. If reinforcement is delivered on a clock no matter what the person does, that's a time-based schedule (fixed time or variable time), which is noncontingent.
2. **Mixing up the pause.** Both fixed schedules show a post-reinforcement pause. On **fixed ratio**, the pause ends with an abrupt jump to a high rate (break and run). On **fixed interval**, responding speeds up gradually across the interval (the scallop). Look at what happens after the pause.
3. **Calling every "random" schedule VR.** Ask what the reinforcer depends on. If it depends on the number of responses, it's ratio. If it depends on time passing, it's interval.
4. **Forgetting why we thin.** Questions about keeping behavior going over time or in the real world usually point to moving from CRF to an intermittent schedule, gradually, to avoid ratio strain.

Test yourself: 7 practice questions

Cover the answers and try each one first.

1. A student earns 5 minutes of free time after every 4 completed worksheets. Which schedule is this?
2. A child earns a prize after 2 correct answers, then 8, then 5, averaging 5. Which schedule is this?
3. A teacher praises the first on-task behavior she sees after 10 minutes have passed, every time. Which schedule is this?
4. A graph shows very little responding right after reinforcement, then responding gets faster and faster until the next reinforcer. Which schedule produced this pattern?
5. A learner has mastered a new skill on CRF. The team wants the skill to keep going after therapy ends. What should they do next?
6. On an FI 2 min LH 10 s schedule, a student responds 20 seconds after the interval ends. Is the response reinforced?
7. A learner completes ratios of 3, 6, 9, and 12 for a tablet, then stops responding at 15. What is the breaking point?

> **Answer key**
>
> 1. **FR 4.** A set number of responses (4 worksheets).
> 2. **VR 5.** A changing number of responses that averages 5, not time.
> 3. **FI 10 min.** A set amount of time must pass, *and* the student must be on-task.
> 4. **Fixed interval.** That's the scallop.
> 5. **Thin the schedule gradually** to an intermittent schedule, such as a variable ratio, to build resistance to extinction without causing ratio strain.
> 6. **No.** The 10-second limited hold had already expired.
> 7. **12**, the last ratio completed.

For parents and teachers: why this matters at home and in class

You don't need to pass an exam to use this. Two takeaways:

- **When teaching something new, reinforce it every time.** First time your child puts shoes on without a reminder? Celebrate it. Every time, at first.

- **Then start spacing it out, unpredictably.** Once the skill is solid, praise some of the time instead of every time. Unpredictable praise keeps behavior going longer.

The flip side is the one that surprises most parents. **Giving in "sometimes" is a variable schedule too.** If whining gets the tablet one time out of five, you've built a slot machine. That whining will be very hard to stop. Being consistent with problem behavior matters more than being perfect with good behavior.

Want the difference between reinforcement and bribery? Read Reinforcement vs. Bribery: What's the Actual Difference?

The bottom line

Ask two questions: is the reinforcer based on **responses or time**, and is the requirement **fixed or variable**? Answer both and you've named the schedule. Then remember the patterns: FR pauses then runs, VR never stops, FI scallops, and VI keeps a steady pace.

Coming next, Part 2: compound schedules (concurrent, multiple, mixed, chained, tandem, alternative, and conjunctive) and differential reinforcement of rates (DRH and DRL).

Sources

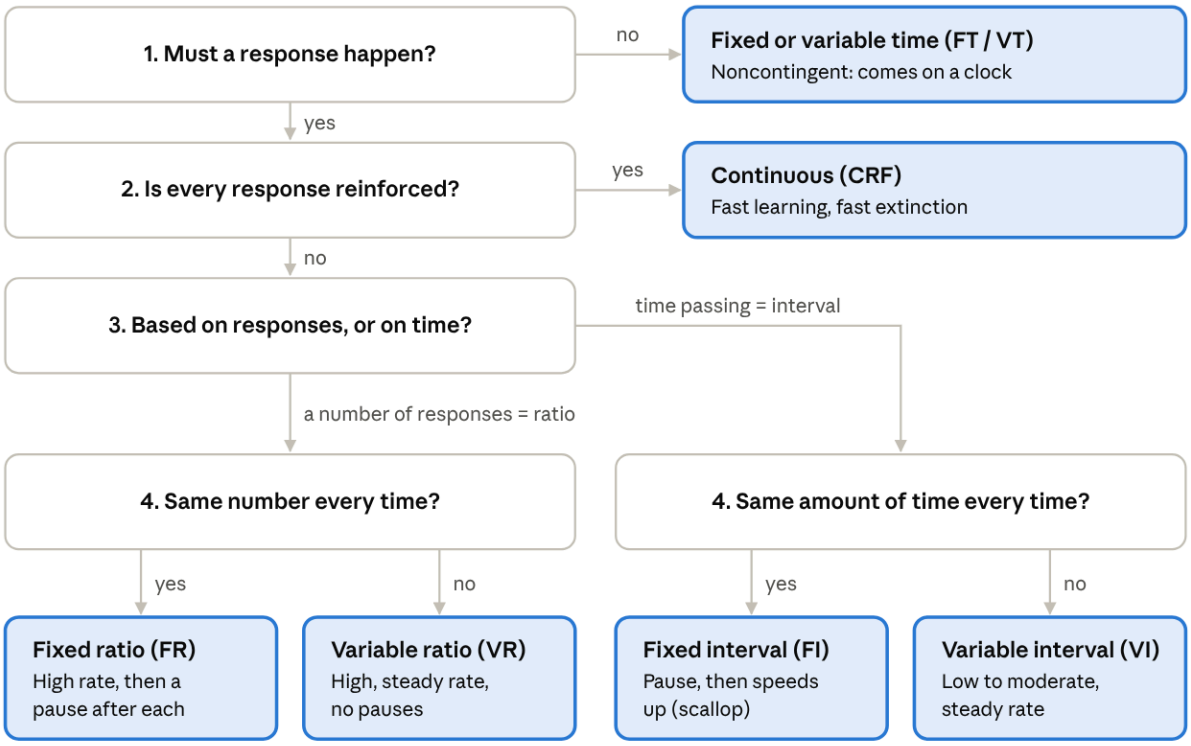
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2020). *Applied behavior analysis* (3rd ed.). Pearson. Chapter 13, Schedules of Reinforcement.

This article is for educational purposes and does not constitute clinical advice. Content aligns with the BACB Ethics Code. ABA Breakdown is not affiliated with or endorsed by the BACB.

Printable: name it, then choose it

Name any schedule of reinforcement in four questions

Questions are outlined, answers are shaded. Start at the top.



Which one should I use?

Teaching a brand-new skill	**CRF: reinforce every time**
Keeping a learned skill going	**Thin gradually to VR or VI**
Want a high, steady rate of work	**VR**
Steady behavior you can only check now and then	**VI**
Need steady work, not last-minute bursts	**Avoid FI (it scallops)**

ABA Breakdown · ababreakdown.com · Educational use only, not official BACB material