MATHEMATICS & OLYMPIADS

The AMC / APMO / IMO Roadmap

Understand exactly which competitions feed into which — so you know what actually qualifies you for the next stage, instead of guessing at a confusing pipeline.

SKILL LEVEL: INTERMEDIATE **BUILD TIME:** ONGOING — PLAN ONE SEASON AHEAD

EST. COST: $0–25 (SOME CONTESTS CHARGE A SMALL REGISTRATION FEE)

> Before you start: this blueprint assumes you've read MO-001 (Getting Started with Olympiad Mathematics) and are already training consistently. This one is about navigating the competition ladder itself, not building foundational skill.

01 Objective

The path from "good at math" to "on an IMO team" runs through a specific sequence of named competitions — and which ones apply to you depends on your school system and country, not just your skill level. Students regularly miss an entire competition cycle simply because they didn't know a qualifying round existed, or assumed a US-specific contest applied to them when a national olympiad was the actual path. By the end of this blueprint, you'll know exactly which ladder applies to you, what each rung requires, and how the qualification math actually works.

02 Prerequisites

- A consistent training habit already in place — see MO-001 if you're still building this
- Knowledge of your school's exam board and country, since eligibility rules differ by system
- A calendar you actually check — most missed opportunities are deadline problems, not ability problems

03 Recommended Resources

RESOURCE	COVERS	NOTES
AoPS Wiki — competition archives	Past papers for AMC, AIME, USAMO, IMO, and most national olympiads	Free — the single most complete public archive
Your national math olympiad committee's website	Official eligibility rules, deadlines, and registration	Free — usually run by a ministry of education or math society
AMC official site (maa.org)	AMC 10/12 registration, past problems, and index calculators	Free problems; contest requires a proctoring school
APMO official coordinator list	Country-by-country APMO participation rules	Free — APMO runs through a national coordinator, not individual registration
MOP / national training camp alumni or forums	First-hand accounts of what each qualification stage actually feels like	Free — AoPS forums are the most active

04 Tools Required

- A shared calendar or reminder app for tracking registration and contest dates
- Contact information for your school's math teacher or olympiad coordinator, who typically handles registration

> **ELIGIBILITY RULES VARY BY CONTEST**
> Age limits, grade limits, and citizenship requirements differ across AMC, APMO, national olympiads, and IMO team selection — and they change occasionally. Never assume last year's rule still applies; check the official page for the current cycle before planning around a specific contest, especially for IMO team eligibility, which is strictly tied to citizenship and age.

05 The Path to IMO

There isn't one single ladder — there are several, depending on your school system, and they converge at the same destination: national team selection for the IMO. Most students outside the US system will follow the national olympiad route rather than AMC/AIME.

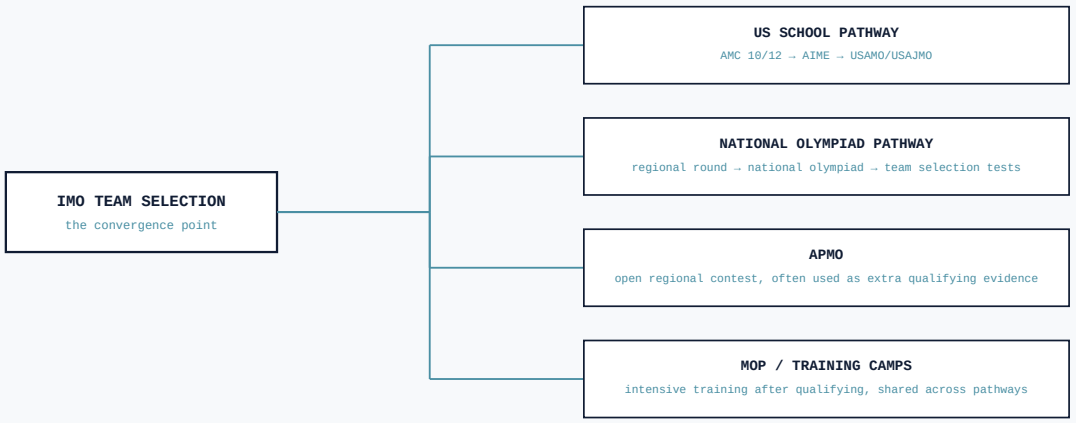

FIG. 1 — MULTIPLE ENTRY LADDERS CONVERGING ON THE SAME NATIONAL TEAM SELECTION

COMPETITION	WHO IT'S FOR	FORMAT
AMC 10 / AMC 12	US and international schools that proctor it, by grade level	25 multiple-choice questions, 75 minutes
AIME	Qualifiers from AMC, via a score index	15 questions, integer answers 0–999, 3 hours
USAMO / USAJMO	Top AIME qualifiers by index	Proof-based, 6 problems over 2 days
National Olympiad (varies by country)	Usually open to all students via school or regional rounds	Format varies — often proof-based at the final stage
APMO	Countries with an official APMO coordinator	4 problems, proof-based, taken in one sitting under national supervision
IMO	National team members selected via the above stages	6 problems, proof-based, 2 days, individual and team scoring

06 Step-by-Step: Mapping Your Own Ladder

1. **Identify which system you're actually in.** If your school is on the US/international AMC circuit, that's your entry point. If not, your country's national olympiad committee is almost certainly the real pathway — check its official site directly rather than assuming AMC applies.
2. **Find your school's contest coordinator.** AMC and many national olympiads require a proctoring teacher or registered exam center — you generally can't register as an individual.
3. **Mark every deadline the moment you find it.** Registration windows for national olympiads often close months before the contest itself — far earlier than most students expect.
4. **Understand the qualification math for your pathway, not just the contest content.** AMC/AIME uses a numeric index (Section 7); most national olympiads use straightforward score cutoffs published after each round.
5. **Train specifically for the next rung's format, not just difficulty.** AIME requires integer answers under time pressure — a different skill from AMC's multiple choice. USAMO and APMO require full written proofs — a different skill again.
6. **Register for APMO through your national coordinator if your country participates.** It's not an individual sign-up — ask your olympiad committee whether your country has one.
7. **If you qualify for a training camp (MOP or national equivalent), treat it as a separate preparation phase.** These camps assume the fundamentals are already solid and focus entirely on advanced proof technique.

07 Qualification Math Walkthrough

The AMC-to-AIME pipeline uses a specific numeric formula that trips up a lot of first-time competitors. Here's exactly how it works.

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QUALIFICATION INDEX (used to determine AIME invitations):

  Index = AMC score + 10 × (number of AIME questions answered correctly, if already taken)
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  For most students taking the AMC for the first time, this simplifies to:
  Index = AMC 10/12 score alone

  Typical AIME qualification: top ~5% of AMC 10, or top ~10% of AMC 12
  (Exact cutoffs are published after each contest — they change yearly, so
   never rely on a remembered number from a previous year.)

EXAMPLE:
  A student scores 118 on the AMC 12.
  The published AIME cutoff that year was 94.5.
  118 > 94.5 → this student qualifies for the AIME.

  Note: cutoffs are usually not round numbers, since they are set to
  produce a target number of AIME qualifiers nationally — a score just
  above or below the cutoff is normal and expected, not an error.
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The same logic — check the official cutoff for the current year, never a remembered figure — applies to national olympiad qualifying rounds too.

08 Common Mistakes

MISTAKE	WHY IT HURTS	FIX
Assuming AMC/AIME applies when your country runs its own olympiad	Wastes preparation time on the wrong contest's format entirely	Confirm your actual pathway with your national olympiad committee first
Missing a registration deadline	Some qualifying rounds only run once a year — a missed deadline means waiting twelve months	Set calendar reminders the moment a new contest cycle opens registration
Training only for multiple-choice speed, ignoring proof writing	USAMO, USAJMO, and APMO are entirely proof-based — a different skill from AMC	Start proof practice well before you expect to qualify for a proof-based round
Not checking citizenship/age eligibility for IMO team selection	IMO team eligibility is strict and non-negotiable in most countries	Check official IMO and national team eligibility rules early, not after qualifying
Overlooking APMO as an option	Many students don't realize their country participates until it's too late to register	Ask your olympiad coordinator directly whether your country has an APMO delegation

09 Where This Goes Next

FROM KNOWING THE LADDER TO CLIMBING IT

Understanding the pipeline only matters if your actual problem-solving is ready for the next rung — and the biggest jump on this entire ladder is the shift from multiple-choice or numeric answers to full written proofs. Pair this blueprint with the upcoming **MO-003 (Proof Writing)** to build that specific skill, and revisit **MO-001 (Getting Started with Olympiad Mathematics)** if your daily training rhythm needs rebuilding before the next contest cycle.