

## Exhibit 21: Main Preparation Routes and Current Requirements for Fourth Grade Teachers

Reported by National Research Coordinators

Country	Main Teacher Preparation Route	Current Requirements				Description of Policy Changes Within Past 10 Years
		Supervised Practicum During Teacher Education Program	Passing a Qualifying Examination	Completion of Probationary Teaching Period	Completion of Mentoring or Induction Program	
Albania	Most teachers receive their education through a university degree program in the field of education.	● (1 year)	●	● (3 months)	●	In 2010, a law was introduced to regulate the profession. Now, teachers must hold a license.
Armenia	Most teachers receive their education through a university degree program. Some have attended a teacher college program, but that is becoming less common.	● (1 year)	●	○	○	Beginning in 2023, teachers will be required to hold a bachelor's degree.
Australia	Most teachers receive a 4-year university degree in education, or complete a 2-year postgraduate qualification program following a 3- or 4-year noneducation degree.	● (varies by course, but at least 60 days)	●	● (varies by state, but usually around 1 year)	○	In 2011, all Ministers of Education endorsed a nationally consistent approach to teacher registration that includes requiring the same standards and consistent processes across states and territories. Since 2016, all initial teacher education candidates take the Literacy and Numeracy Test for Initial Teacher Education Students to demonstrate that they are in the top 30% of the adult population for personal literacy and numeracy.
Austria	Since 2015, all teachers are required to hold a bachelor's degree from a university. Teachers also are encouraged to complete a master's degree.	● (at least 65 days)	●	○	●	In 2013, a law requiring teacher education programs to be housed in university colleges of teacher education was introduced. Teachers also were offered the option to specialize in a subject or pedagogical topic. Since 2015, all teachers must complete a bachelor's degree (240 ECTS credits). As of 2019, all teachers also must complete courses adding up to a minimum of 60 (or up to 120) ECTS credits, and their first year of teaching is considered an induction phase, during which they are supported by mentors. Teachers may begin the induction phase while completing their master's degree, or after.
Azerbaijan	Primary teachers must have a university or college degree and should major in Pedagogy of Primary Education.	● (14 weeks)	●	○	○	No change in policy
Bahrain	Teachers are required to hold a subject-specific bachelor's degree (e.g., mathematics or science) and attend in-service training. Teachers that did not complete their degree at an educational institution must obtain a post-graduate diploma (PgD) in education.	● (1 year)	○	○	○	Since 2012, teachers graduating from Bahrain Teachers College can teach all subjects and are exempt from the PgD requirement.
Belgium (Flemish)	Teachers receive their education through a bachelor's degree program at a university college (equivalent to 180 ECTS credits). Older teachers completed a 2-year program.	● (3 years)	●	○	○	No change in policy
Bosnia and Herzegovina	All teachers receive their education through a university degree program.	● (1–2 years)	●	● (1–2 years)	○	No change in policy
Bulgaria	Primary teachers must have at least a bachelor's degree (4 years) in primary pedagogy.	● (150–240 hours)	●	○	○	No change in policy

● Yes  
○ No

Note: 60 European Credit Transfer and Accumulation System (ECTS) credits are equivalent to one full year of study or work.

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Canada	Teachers are trained by faculties of education at universities. Teachers must hold a teaching degree (e.g. Bachelor's of Education, Master's of Teaching, etc.) to teach in public schools.	● (2 weeks–4 months)	●	● (900 hours–2 years)	●	Since 2015, initial teacher education programs doubled in length (from 2 to 4 academic semesters), and the minimum practicum requirements doubled (from 40 to 80 days). The Ontario College of Teachers Act was amended to include a provision requiring teachers to pass a mathematics proficiency test to teach in public schools.
Chile	Teachers receive their education through a university degree program. The most common degree is "basic education pedagogy" ( <i>pedagogía en educación básica</i> ), which includes Grades 1–8.	● (6 months–1 year)	●	○	○	In 2016, the Teacher Professional Development System Law was passed, changing the way teachers are selected into initial training programs, their preparation, their working conditions and salaries, and their professional development. Now, all teacher preparation programs are housed at universities, and additional admission requirements are being gradually introduced. Pedagogy students must take 2 diagnostic evaluations—1 administered by universities at the beginning of the program and 1 by the Ministry of Education during the 12 months leading up to graduation.
Chinese Taipei	Most teachers attend a teacher education program while they receive their education in universities.	● (6 months)	●	○	●	No change in policy
Croatia	Teachers receive their initial training and education necessary for teaching through university degree programs. All homeroom teachers are educated in Teacher Faculties within the main Croatian universities and may have majored in a variety of fields.	● (2 years)	●	● (1 year)	○	In 2010, the Bologna Process for tertiary education was fully implemented.
Cyprus	Grade 4 teachers must hold a university degree in education/pedagogy.	● (varies, typically 6 months)	○	● (varies, 4–6 years)	○	No change in policy
Czech Republic	Most teachers receive their education through a university degree program (master's degree).	● (typically 6–7 weeks)	●	○	○	No change in policy
Denmark	Teachers must complete a 4-year professional bachelor program in education (equivalent to 240 ECTS credits).	● (18 weeks)	●	○	○	In 2013, a new school reform set a goal for all teachers to have education experience and/or majored in all subjects they teach by 2020. The requirement to hold a degree from a 4-year professional bachelor's program was introduced in 2017.
England	Teachers in Local Authority maintained schools must have a degree to obtain Qualified Teacher status and meet threshold General Certification of Secondary Education (GCSE) standards in English, mathematics, and science. Teachers in academy schools (state-funded but independent of the Local Authority) do not need to be qualified.	● (24 weeks)	○	● (1 school year)	●	As of 2012, all independent schools, free schools, and academies may employ teachers without qualified teacher status.

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Finland	All teachers receive a Master's of Education through a university degree program.	●	○	○	○	No change in policy
France	Since 2013, primary teachers complete a master's degree in teaching careers, education, and training organized by the <i>coles suprieures du professorat et de l'education</i> (higher education of the teaching staff and education). The program of study includes a competitive examination at the end of the first year and a practicum.	● (1 year)	●	●	●	From 1991 to 2010, primary teachers completed a 3-year university degree ( <i>licence</i> ), followed by 1-year training in a University Institute of Teacher Education that included supervised practicum and 12 weeks of training courses. From 2011 to 2013, primary teachers completed a master's degree that also included supervised practicum and coursework.
Georgia	Primary teachers must have at least a bachelor's degree and pass an examination in the subjects they will teach.	● (1 semester)	●	○	○	The requirement to pass examinations in the subjects the candidate will teach and to become involved in professional development/career advancement were introduced in 2015.
Germany	Teacher education consists of 2 stages—higher education, including periods of practical training, offered in universities and colleges of arts and music, and practical pedagogic training ( <i>Vorbereitungsdienst</i> ) in teacher training institutes and schools. For primary teachers, higher education consists of 10 semesters (6 bachelor's and 4 master's) and a total of 210 ECTS credits that devote attention to education science and practical teaching components.	● (varies by degree)	●	● (18 months)	●	The state examination is being replaced by bachelor's and master's degrees, and the amount of practical training in university has considerably increased in recent years. The number of side-entrants recruited to teach without completing the actual preparatory period also has increased.
Hong Kong SAR	Most teachers receive their professional training through a university degree program. Teachers also continually receive professional development.	●	●	●	○	In the 2019–2020 school year, the all-graduate teaching force policy was implemented in public sector primary and secondary schools. By the 2020–2021 school year, all schools must fully implement this policy.
Hungary	Lower primary teachers are required to hold a bachelor's degree. The degree may be earned in 8 semesters at an independent teacher training college at a university. In this system, students take courses in their specialty subjects and in pedagogy. Candidates participate in a continuous 8–10 week teaching practice and take an in-classroom teaching examination and a state examination.	● (2–3 months)	●	○	●	Beginning in 2013, training programs for primary school teachers introduced an 8+2 semester model (8 semester master's degree, 2 semesters of professional practice). As of 2017, all teacher training programs follow this model.
Iran, Islamic Rep. of	Most teachers receive their education through teacher education programs or from universities with majors in primary education.	● (2 semesters)	○	○	○	No change in policy
Ireland	Primary teachers may complete their Initial Teacher Education (ITE) through 1 of 2 routes. In the concurrent model, teachers complete a 4-year Bachelor's in Education; in the consecutive model, those who have already completed a basic degree complete a 2-year post-graduate Professional Master in Education (PME).	● (approximately 20 weeks)	●	● (100 days)	●	The duration of initial teacher education programs has increased from 3 to 4 years (concurrent) and from 18 to 24 months (consecutive). Since 2012, all newly qualified teachers are also required to participate in the national induction program.

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Italy	Primary teachers are required to complete a 5-year university degree program in education ( <i>Laurea Magistrale in Scienze della Formazione Primaria</i> ) to become a certified teacher. Students are required to attend a period of supervised practicum throughout years 2–5 of the course and to write a final report. The period of supervised practicum includes class observation activities, tutored teaching practice, and self-directed teaching activities.	● (600 hours)	●	● (1 year)	○	Since 2013, a specific training course ( <i>Tirocinio Formativo Attivo</i> ) is no longer required. A university degree is a compulsory and sufficient prerequisite for taking the qualifying examination to become a fully certified teacher.
Japan	Teachers of Grade 4 students in public schools must hold an elementary school teacher certificate (which can be earned through an associate or undergraduate degree program) and pass an examination offered by the local Board of Education.	● (4 weeks)	●	● (1 year)	●	No change in policy
Kazakhstan	Most teachers receive their education through a university degree program. Some attend a teacher college, but that is becoming less common.	● (3 months)	●	○	●	No change in policy
Korea, Rep. of	Most teachers receive their education through a national university of education. Some receive their education through the department of elementary education in a teachers college.	● (8–9 weeks)	●	○	○	No change in policy
Kosovo	All teachers receive their education through a university degree program. These programs include training in a variety of topics offered by the Ministry of Education, Science, and Technology (MEST) and by nongovernmental organizations with MEST-accredited programs.	● (9 months)	●	● (1 year)	●	Since 2006–2007, teachers are required to complete an additional 2-year requalification program ( <i>Advancing Qualification of Teachers</i> ).
Kuwait	Primary teachers must have a university degree from the department of education at Kuwait University, a college of basic education, or any equivalent university degree from another institution.	● (4 months)	○	● (3.5 months)	●	No change in policy
Latvia	Teachers receive their education through a university degree program.	● (8–20 weeks)	●	○	○	Since 2018, new teacher candidates that did not complete a university teacher qualification program can earn their credentials by working under the guidance of a teacher mentor with higher education for a maximum of 1 year.
Lithuania	Most primary school teachers receive their education in pedagogical universities through a university degree program (bachelor's degree, 4 years) or primary teacher college programs (3–4 years).	● (3 months)	○	○	○	In 2014, the Minister of Education and Science approved new qualifications for becoming a teacher. One of the main changes was that pedagogical university students must finish their studies before they begin teaching in primary schools.

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Malta	Most teachers receive their initial teacher education through a 3-year university degree program followed by a 2-year post graduate Master in Teaching and Learning (MTL).	● (10 weeks)	○	● (1 calendar year)	●	Since 2017, an MTL is required.
Montenegro	Primary school teachers must have a higher education degree from a Faculty of Teacher Training and Education (3+2 year model).	● (1 year)	●	● (9 months)	●	Since 2017, teachers are required to have a master's degree (5 years) from a Faculty of Teacher Training.
Morocco	Almost all primary teachers attend a 1-year teacher training program at a teacher training school.	● (6 months)	●	● (1 school year)	●	Starting in 2016, primary teachers are being trained in the Regional Centers for the Professions of Education and Training.
Netherlands	All primary teachers must hold a diploma from 1 of the primary school teacher training colleges (higher vocational education). This diploma allows teachers to teach K1 to Grade 6.	● (varies by program)	●	● (6 months)	○	No change in policy
New Zealand	The most common preparation routes are either via a 3-year bachelor of education program (specializing in primary teaching), a 4-year conjoint degree program (e.g., Bachelor of Arts/Bachelor of Teaching), or a 1-year compressed graduate diploma program of study, which can be undertaken by candidates who already hold a university degree.	● (at least 14 weeks)	○	● (at least 2 years)	●	No change in policy
North Macedonia	All teachers receive their education through a university degree program.	● (120 hours)	●	● (1 year)	●	No change in policy
Northern Ireland	Teachers complete a 4-year Bachelor of Education (BEd-Honors) degree or a 1-year Postgraduate Certificate in Education (PGCE) course (both directed at primary level teaching).	● (32 weeks for B.Ed or 16 weeks for PGCE)	●	● (1 year)	○	No change in policy
Norway	Most teachers attend a specific teacher education program. Programs for teachers of Grades 1–7 are provided by the University Colleges.	● (at least 100 days)	●	○	○	Since 2014, teachers must have 30 ECTS credits in mathematics to teach Grade 4 mathematics. School owners are responsible for providing teachers who completed their education before this change was implemented with the opportunity to acquire the minimum required credits by 2025.
Oman	Most teachers receive their education through a university degree program.	● (1.5 years)	○	● (1 semester)	●	No change in policy
Pakistan	Teachers should have a university degree with a professional degree in education. Teachers are recruited on the basis of academic achievement, scores on a screening test, and an interview.	● (4 weeks)	●	● (1 year)	○	No change in policy

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Philippines	Most teachers hold a Bachelor's of Elementary Education, a college degree in Teacher Education, or have completed a Teacher Certificate Program. Teachers must pass the Licensure Examination for Teachers (LET), conducted by the Professional Regulation Commission, to begin teaching.	●	●	●	●	No change in policy
Poland	There are 3 teacher preparation routes. In the concurrent model, candidates must complete university education in the given field of study (e.g. mathematics, biology, Polish) with the teacher education module, consisting of additional courses in subject-specific pedagogy, psychology, and practicum. In one consecutive model, candidates must complete postgraduate studies for qualification to teach specific school subjects. In another consecutive model, candidates must complete pedagogical courses consisting of a teacher preparation module addressed to graduates of tertiary education (courses in subject-specific pedagogy, psychology plus required hours of practicum).	● (varies by model, but at least 150 hours)	○	●	○	Revised standards for teacher education were introduced in 2019 and emphasize the importance of practicum. They also dictate that starting in 2021, universities that provide teacher education must have at least scientific category B in the discipline to which the field of study is assigned.
Portugal	All teachers receive their education through a university program and hold a bachelor's or master's degree.	● (1 school year)	○	● (1 school year)	●	In 2015, a policy requiring teachers to pass a qualification examination to practice at state-endorsed schools was suspended.
Qatar	All teachers must hold a bachelor's degree in the subject they teach from a recognized university. Candidates who hold a degree from the Faculty of Education or from other faculties and have a minimum grade average of "good" may teach in Qatari schools without having previous teaching experience.	● (1 semester)	○	● (3–6 months)	○	The requirement for teachers to hold a university degree was introduced in the past 10 years.
Russian Federation	Most teachers receive their education in the pedagogical faculty at a university or through a teacher college program.	●	●	○	○	The Russian Ministry of Labor approved the Professional Teachers Standard in 2013, which requires that teachers possess new competencies to work with gifted students; implement inclusive education programs; teach Russian language to non-native speakers; and work with students with developmental issues, students who are socially neglected or vulnerable, and students with serious behavioral issues.
Saudi Arabia	Most teachers receive their education through a university degree program. Some have attended a teacher college program, but that is becoming less common.	● (1 academic term)	●	○	○	No change in policy

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○ No

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Serbia	All teachers receive their education through a university master's degree program.	● (1 month)	●	● (1 year)	●	Starting in 2016, Grade 4 mathematics and science teachers must complete a master's teacher program. Teachers with bachelor's degrees may only teach afterschool activities (e.g., extracurricular activities and homework).
Singapore	All prospective primary school teachers are required to complete 1 of 4 pre-service teacher education programs conducted by the National Institute of Education, Nanyang Technological University. They can obtain either a 2-year Diploma in Education, a 4-year Bachelor of Arts/Science (Education), a 16-month Postgraduate Diploma in Education (Primary), or a 2-year Postgraduate Diploma in Education (Physical Education).	● (at least 10 weeks)	●	● (1 year)	●	No change in policy
Slovak Republic	Primary school teachers (Grades 1–4) are required to graduate from a second stage of university study (5-year master's degree program usually from a Faculty of Pedagogy). Teachers are trained to teach all subjects in Grades 1–4 except for foreign languages.	● (varies by program, approximately 100 hours)	●	○	●	No change in policy
South Africa	Most teachers receive their education through a university degree or diploma program.	● (9 weeks per year)	○	● (1 year)	○	The Revised Minimum Requirements of Teacher Education Qualifications Policy (2015) provides guidelines for initial teacher education with 2 training options. Teachers may complete a 4-year Bachelor of Education (BEEd) degree or complete an appropriate degree followed by a 1-year Advanced Diploma in Education, and register with the South African Council for Educators.
Spain	Primary teachers complete a 4-year university degree including a compulsory practicum.	● (50 ECTS)	○	● (varies by region, up to 1 school year)	○	In 2010, the university degree for primary school teachers was extended from 3 to 4 years according to The Bologna Process and in accordance with the European process of convergence.
Sweden	Teachers receive their education through a university teacher program.	● (20 weeks)	●	○	●	Since 2011, teachers must apply for a certificate from the Swedish National Agency for Education to obtain permanent employment and to grade students.
Turkey	Teachers receive their education through faculties of education across the country.	● (6 hours per week for 2 semesters)	●	● (at least 1 year)	●	Since 2013, teachers must take a general examination completed by all public personnel and a professional teaching knowledge examination. Following the written examination, teachers must pass an oral examination to become a contract teacher.
United Arab Emirates	All teachers receive their education through a university degree program.	●	●	● (1–2 months)	●	No change in policy

● Yes  
○ No

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United States	The traditional preparation route for public school teachers includes a degree from a 4-year college or university and completion of a teacher education program, including a practicum of supervised teaching experience. Elementary teachers (Grades 1–5) may hold a bachelor's degree in education or another subject area. All public school teachers must be licensed by the state in which they are teaching. States have the autonomy to determine the qualifications that teachers need to obtain certification to teach specific subject areas by grade level.	● (varies by state, typically 8–12 weeks)	●	● (varies by state, typically 1–3 years)	●	The Every Student Succeeds Act of 2015 requires all teachers to hold a license/certification from their state and grants states the autonomy to set requirements for highly qualified teachers. This requirement reflects a change from the No Child Left Behind Act of 2002, which included specific federally mandated requirements for elementary, middle school, and high school teachers.
<b>Benchmarking Participants</b>						
Ontario, Canada	Teachers are trained at faculties of education and generally hold a Bachelor's of Education. Programs may be either consecutive (4 semesters post-undergraduate) or concurrent (4 semesters concurrent with undergraduate).	● (at least 80 days)	●	○	●	Since 2015, initial teacher education programs doubled in length (from 2 to 4 academic semesters), and the minimum practicum requirements doubled (from 40 to 80 days). The Ontario College of Teachers Act was amended to include a provision requiring teachers to pass a mathematics proficiency test to teach in public schools.
Quebec, Canada	Most teachers hold a bachelor's degree in preschool and elementary education from a university in Quebec.	● (700 hours)	●	● (900 hours)	○	No change in policy
Moscow City, Russian Fed.	Most teachers receive their education through a 4-year bachelor's program with a specialization in pedagogy. Some teachers attend a teacher college program, but this is becoming less common.	● (16–20 weeks)	●	●	●	The Russian Ministry of Labor approved the Professional Teachers Standard in 2013, which requires that teachers possess new competencies to work with gifted students; implement inclusive education programs; teach Russian language to non-native speakers; and work with students with developmental issues, students who are socially neglected or vulnerable, and students with serious behavioral issues.
Madrid, Spain	Same as Spain					
Abu Dhabi, UAE	Same as United Arab Emirates					
Dubai, UAE	Same as United Arab Emirates					

● Yes  
○ No