

The logo for the Arapahoe/Douglas Workforce Board is centered in a white circle. It features a stylized blue wave above the text "Arapahoe/Douglas WORKFORCE BOARD" in a blue, sans-serif font. The text "Arapahoe/Douglas" is on the top line, and "WORKFORCE BOARD" is on the bottom line. The background of the slide is a solid blue color with a repeating pattern of faint, circular, concentric designs.

Arapahoe/Douglas
WORKFORCE BOARD

Teacher Training Pipeline

February 1, 2018

Teacher Shortage?

In 2016, there were 77,449 people employed in K-12 education in greater metro Denver. By 2021, this number will grow to 88,511, an annual growth rate of 2.9%

Regional Industry Growth Projections, Greater Metro Denver

NAICS Code	Description	2016 Jobs	2021 Jobs	Change	Annual Growth Rate	National Location Quotient	Payrolled Business Locations
611110	Elementary and Secondary Schools	9,857	11,834	1,977	4.0%	0.88	86
902611	Elementary and Secondary Schools (State Government)	640	779	139	4.3%	1.07	7
903611	Elementary and Secondary Schools (Local Government)	66,952	75,898	8,946	2.7%	0.95	108
	Totals	77,449	88,511	11,062	2.9%		201

Source: EMSI 2016.4 – QCEW Employees, Non-QCEW Employees & Self-Employed Class of Worker

Population Growth

Projected Population Growth, K-12 Age Bands, Metro Denver

Demographic	2016 Population	2017 Population	2018 Population	2019 Population	2020 Population	2021 Population	Change	% Growth	Annual %
Under 5 years	183,699	190,343	197,776	205,790	212,749	214,601	30,902	16.8%	3.4%
5 to 9 years	187,168	185,702	183,547	180,998	179,706	184,321	(2,846)	-1.5%	-0.3%
10 to 14 years	190,491	192,646	193,773	193,949	193,344	191,430	940	0.5%	0.1%
15 to 19 years	171,944	175,450	178,583	181,651	182,987	183,672	11,728	6.8%	1.4%
Totals	733,301	744,140	753,679	762,388	768,786	774,025	40,724	5.6%	1.1%

Source: U.S. Census data compiled by EMSI

The projected employment growth in the K-12 industry group in greater metro Denver outstrips projected population growth by a full 1.8%. This may suggest a movement toward smaller class size as an adjustment from the higher class sizes necessitated by the recession. The certainty is the need for more teachers at all levels.

More than Just Teachers

The K-12 education group employs more than just teachers:

5.1% of total employment in K-12 is clerical

3.4% of total employment is custodial.

2.3% of the employment is bus transportation.

1.7% are childcare workers, suggesting investment in on-site childcare so that teen parents can finish their education.

1.5% of the employment is in food service.

A Graying Labor Force

K-12 School Age Gap Analysis

34 or under	19,109	24.5%
45 or older	40,373	51.8%
Age Gap	(21,264)	-27.3%

Source: EMSI 2016.4 QCEW, Non-QCEW & Self-Employed

In addition to the 40,724 jobs the K-12 industry will need to add through 2021, over 21,200 people will be leaving the industry through retirement.

Annual Change, K-12 Schools

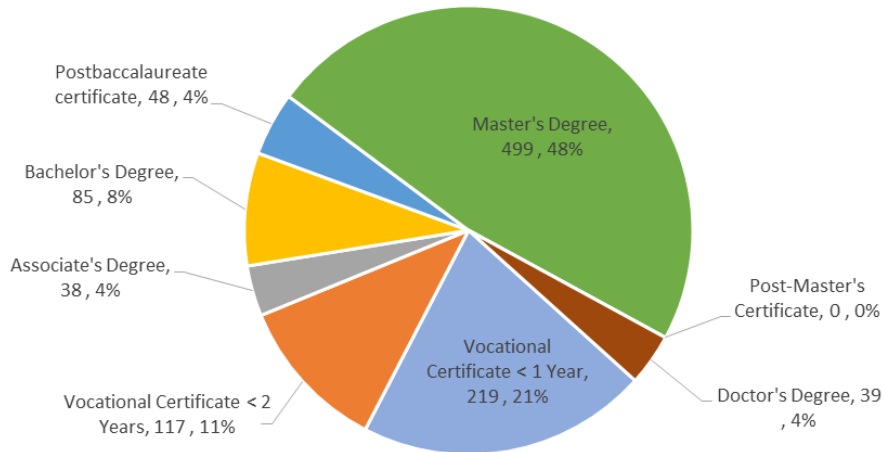
Entering Labor Force	955
Vacancies (Attrition + Growth)	2,019
Annual Surplus/Shortfall	(1,063)

Source: EMSI 2016.4 QCEW, Non-QCEW & Self-Employed

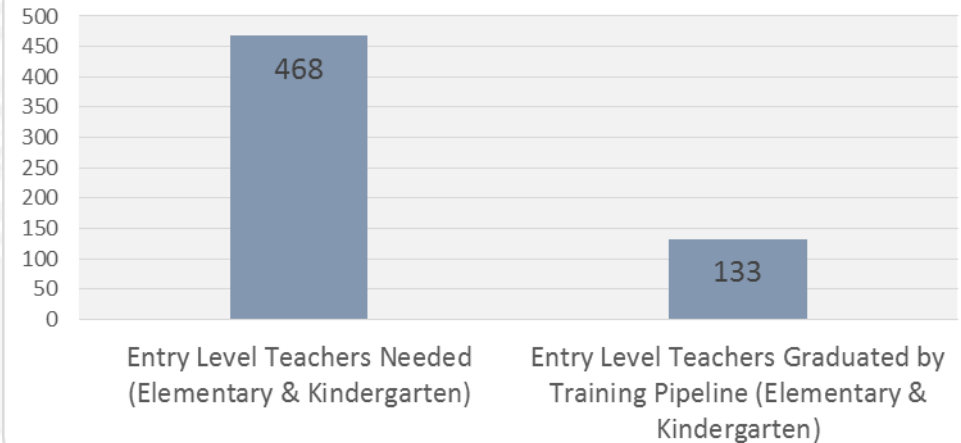
This means that each year, in addition to the 8,145 new jobs in education due to growth, another 1,063 will also need to be filled because of attrition.

Kindergarten & Elementary Teachers

Graduates Emerging From Kindergarten & Elementary Teacher Training Pipeline Serving Greater Metro Denver (2015)



Kindergarten & Elementary Teacher Training Pipeline, Serving Greater Metro Denver (2015)

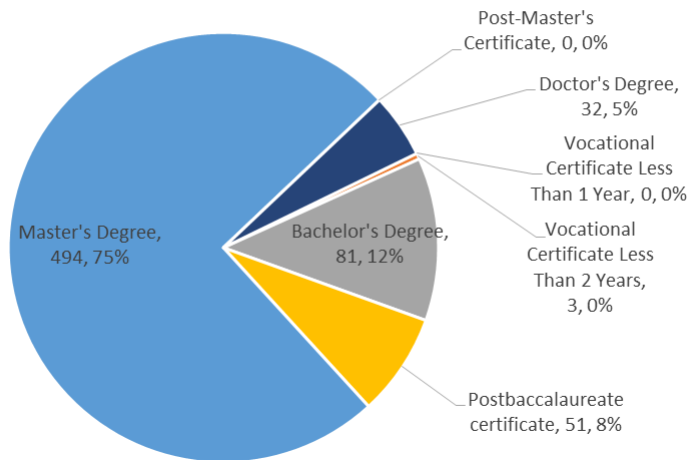


Only a portion (30%) of the kindergarten and elementary teacher preparation programs actually produce entry level teachers. Over half of graduates are at master's or doctoral levels, while only 12% are entry level.

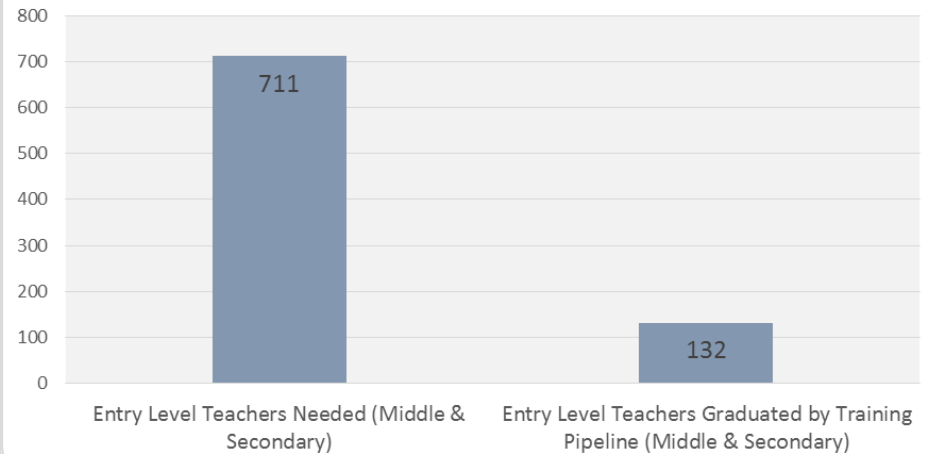
This means there are only 133 entry level kindergarten & elementary teachers to fill 468 entry level openings.

Middle & Secondary Teachers

Graduates Emerging From Middle & Secondary Teacher Training Pipeline Serving Greater Metro Denver (2015)



Secondary and Middle School Teacher Training Pipeline Serving Greater Metro Denver (2015)

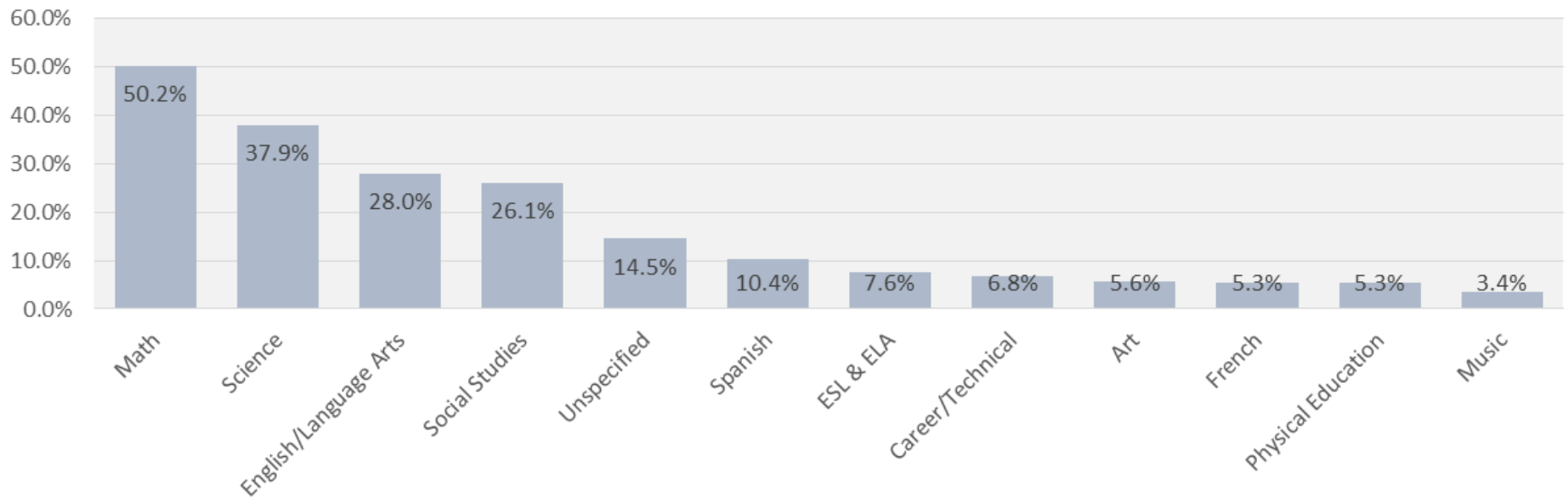


A full 80% of 2015 teacher graduates were at the master's level or above.

This means that only 132 entry level middle and secondary school teachers to fill 711 openings.

What is the Demand by Academic Subject?

Current Middle & Secondary Teacher Listings by Subject
Greater Metro Denver & North Front Range



Well over 80% of the job listings over the last 120 days have been for math or science teachers. Note that there is overlap between the categories, so the percentages on this bar chart exceed 100%

In the Meantime...

Middle & Secondary Teacher Training Pipeline by Academic Subject			
Subject Area	Annual Job Openings	Graduates (2015)	Subject Area Shortfall (Surplus)
Math	166	0	166
Science	134	15	119
English/Language Arts	108	5	103
Social Studies	68	3	65
Unspecified	68	48	20
Foreign Language or ESL	87	0	87
Physical Education	26	0	26
Arts	37	4	33
Music	10	57	(47)
Technology	7	0	7
Totals	712	132	580

Sources: Talent Neuron (Percent Listings) and IPEDS data aggregated by EMSI (Annual Openings, Graduates)

Career & Technical Teachers

There are 30 annual openings per year for career/technical teachers at the middle and high school levels. However, there is only one program, bachelor's level, located at Colorado State University in Fort Collins. It has produced NO completers since prior to 2011.

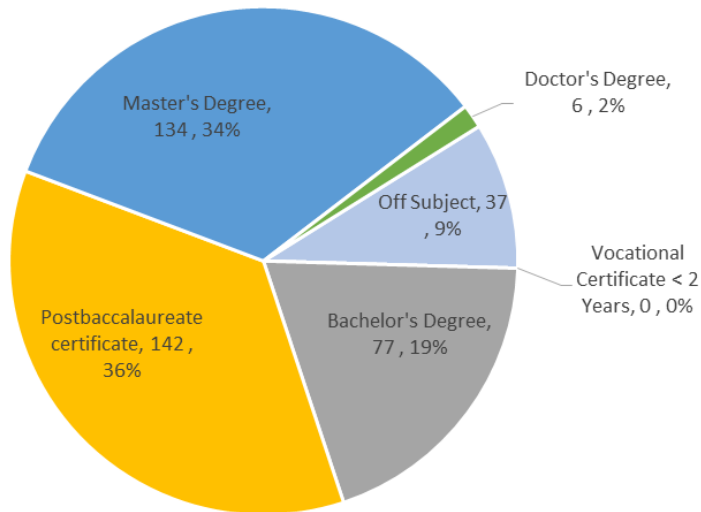
These teachers teach occupational, career and technical, or vocational subjects in public or private schools at the middle, intermediate, or junior high level, and senior high school, as defined by applicable laws and regulations.

Some sample job titles reported by ONET are:

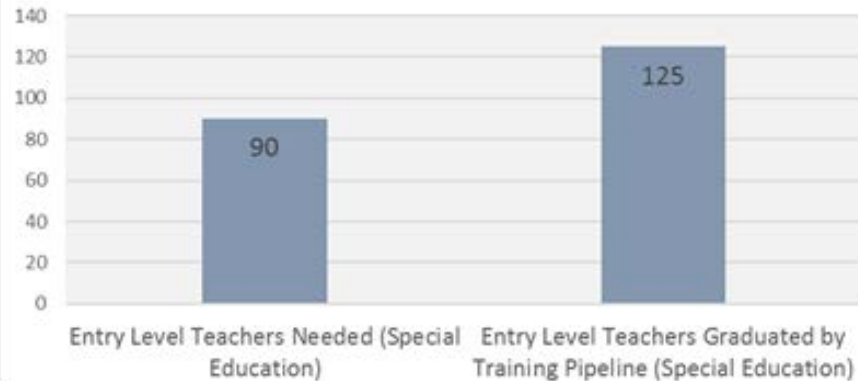
- Business Education Teacher
- Business Teacher
- Computer Teacher
- Computer Technology Teacher
- Family and Consumer Sciences Teacher (FACS Teacher)
- Industrial Arts Teacher
- Industrial Technology Teacher
- Technology Education Teacher
- Technology Teacher

Special Education Teachers

Graduates Emerging From Special Education Training Pipeline Serving Greater Metro Denver (2015)



Special Education Training Pipeline Serving Greater Metro Denver (2015)



The special education teacher training pipeline in greater metro Denver, and Boulder, Larimer and Weld counties, is barely adequate to meet the demand for special education school teachers even in greater metro Denver, and inadequate to meet demand throughout the Northern Front Range.