Middle-Wage Jobs Industry Data Series:

STEM (Science, Technology, Engineering & Math)

MIDDLE-WAGE JOB: Occupations requiring some training or education beyond high school, but not necessarily a 4-year degree, and paying a living wage.[i]

STEM SECTOR[ii]: STEM industries – Science, Technology, Engineering and Mathematics – are varied, spanning subsectors involved in planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services, and research and development services.

STEM OCCUPATIONS[iii]: The Bureau of Labor Statistics has provided some definitional guidance in grouping occupations according to the following categories:

> **SCIENCE** – Occupations where primary functions and responsibilities include designing, managing and conducting experiments, analyzing and interpreting results make up the core of this group. Subcategories within science can be broken out by natural sciences, physical sciences, and life sciences.
>
> **TECHNOLOGY** – Many of this category's occupations are related to computers and information, and require skills in logic and mathematics to design and develop software, databases, and systems.
>
> **ENGINEERING** – The occupations categorized under engineering are vast, but are linked together by the skills required to design, develop and test products, structures, processes, machines and systems.
>
> **MATHEMATICS** – A variety of occupations use mathematics and associated skills, but only a handful focus on mathematics exclusively in a variety of situations.

The majority of STEM occupations require some amount of formal training; on-the-job training is not enough. The skills required to perform occupations in STEM industries are both technical and non-technical. Fundamental skills include reasoning, mathematics, science and logic to identify and solve problems. Beyond the basics, the ability to perform job-specific technical skills related to operation, maintenance, design, and analysis is required. Science occupations include both traditionally thought of positions like physicists and biologists, but also includes a variety of technician and assistant opportunities. Technology occupations are generally related to computer engineering, programming, and systems management and administration. Engineering occupations are the most varied, with engineering technician covering many different industry sub-sectors. Mathematics positions are generally related to analytical positions in finance.

2010 MIDDLE-WAGE STEM JOBS BY EARNINGS AND EDUCATION

The following occupations are identified as STEM Jobs in Demand for Seattle-King County.†

Occupation	2010 Jobs	Current Median Hourly Earnings	Education Level
Managers, all other	8,488	$24.89	Work experience in a related field
Computer support specialists	3,145	$24.14	Associate's degree
Computer specialists, all other	2,342	$39.48	Associate's degree
Electrical and electronic engineering technicians	365	$27.01	Associate's degree
Environmental engineering technicians	80	$27.08	Associate's degree
Nuclear medicine technicians	103	$40.03	Associate's degree
Computer operators	395	$21.50	Moderate-term on-the-job training
Avionics technicians	41	$22.00	Postsecondary vocational award
Automotive service technicians and mechanics	1,703	$22.17	Postsecondary vocational award

Source: Economic Modeling Specialists Inc. (EMSI)

† Demand occupations are defined by the Demand/Decline list for Seattle-King County Workforce Development Area.

MIDDLE-WAGE STEM OCCUPATIONAL PROJECTIONS – Seattle-King County

Middle-wage STEM Occupations are slated for long-term growth for the region.

Occupation	Avg. Annual Growth Rate 2008-2013	Avg. Annual Growth Rate 2013-2018
Managers, all other	0.2%	1.1%
Computer support specialists	1.1%	1.7%
Computer specialists, all other	0.2%	0.6%
Electrical and electronic engineering technicians	0.1%	2.1%
Environmental engineering technicians	0.4%	2.2%
Nuclear medicine technicians	2.2%	2.0%
Computer operators	0.4%	2.0%
Avionics technicians	-0.1%	2.2%
Automotive service technicians and mechanics	0.2%	0.1%

Source: Washington State Employment Security Department Workforce Explorer – www.workforceexplorer.com

MAJOR PROFESSIONAL & BUSINESS SERVICES EMPLOYERS LOCALLY

Major STEM Employers in the King County area include Microsoft, RealNetworks, Zymogenetics, Dendreon, University of Washington, and many others that span all industries but require scientific and technical skills to support their business efforts.

	Number of Individuals Employed in Industry by Occupation | 2007 Seattle-King County WDA						
Industry Title	Number of Employers in King County	Managers, All Other	Computer Support Specialists	Computer Specialists, All Other	Electrical and Electronic Engineering Technicians	Computer Operators	Automotive Service Technicians and Mechanics
Automotive Repair and Maintenance	1,629						1,059
Depository Credit Intermediation	827	203	130	308		28	
Computer Systems Design and Related Services	760	59	1,374	898		88	
Automobile Dealers	456						1,446
Employment Services	443	79	134		282	101	
Data Processing and Related Services	350		119	190		246	
Wireless Telecommunication Carriers	204	544	98	42	36		
Insurance Carriers	88	291	96	88		56	
Management of Companies and Enterprises	69	284	364	219		110	
Aerospace Product and Parts Manufacturing	47	331	262	476	165	21	53
Software Publishers	36	310	1,354	792		40	

Source: Washington State Employment Security Department Workforce Explorer – www.workforceexplorer.com

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i. Accessible middle-wage jobs are identified as those paying at least $21 an hour in 2008 and requiring some education beyond high school but not necessarily a 4-yr degree. $21/hr, assuming 2 full-time earners, is equivalent to annual earnings of $43,680 per person, $87,903 for two earners, which is roughly the median family income for King County for 2008 (American Community Survey).
ii. http://online.onetcenter.org/find/career?c=15&g=Go
iii. Terrell, Nicholas. Spring 2007. "STEM Occupations: High-tech jobs for a high-tech economy." Occupation Outlook Quarterly, Bureau of Labor Statistics. NOTE: Health care related occupations are not included in the official definitions of STEM, though it's important to note that there are health-related STEM occupations that are included, like medical scientists, biomedical engineers, and life scientists.
iv. 2010. "Skills Required: Examining King County Middle Wage Opportunities in STEM." Seattle Jobs Initiative.