

Kansas Science Educator Attrition Study 2012-2013 to 2016-17

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Kansas Science Educators Attrition Study

This report contains the attrition analysis of science educators in the state of Kansas over the last five years. Attrition of science is examined based on size of district, regions of the state, urban vs. rural districts and grade levels taught. This report defines an educator as a leaver if they were not employed in the next school year as a science teacher. The educator may leave the field due to retirement, relocation, change to a different field, or other reason that is not documented in this report. Significant research and reporting has been conducted in recent years on the attrition and shortage of both math and science educators across the country. Math and science positions follow closely behind special education in shortage areas and attrition rates (Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D., 2016). The AAEE Survey in 2014-15 reported that teacher preparation programs as well as schools are reporting considerable shortages in math and science subjects (AAEE, 2016). This is concerning for the fact that, in addition, to schools struggling to find qualified math and science educators the teacher preparation pipeline is also facing challenges on attracting future math and science educators. Attrition of math and science educators can be influenced by a number of factors including retirement, pursuing industry position, dissatisfaction with teaching, and financial reasons. This report does not identify the causes of educators leaving the field but provides a significant look at attrition rates over the course of time in Kansas.

Kansas Science Educator Attrition at the State Level

The following table reports attrition numbers over the last 5 years for science educators in the state of Kansas. In general, the number of educators assigned to science classrooms has dropped from 3,712 in 2013 to 3,349 in 2016. Overall, the attrition rate of 7.9% is higher than the national average of 6.5% that the National Center for Education Statistics reported in their 2012-13 Teacher Follow-Survey (TFS). In fact, in 2017, science educators experienced an attrition rate of 9.1% which is a continued trend of increase from previous years.

Year	Educators	Leavers	Attrition Rate
2013	3712	266	7.2%
2014	3670	268	7.3%
2015	3578	272	7.6%
2016	3473	297	8.6%
2017	3349	304	9.1%
<i>Total</i>	17,782	1,407	7.9%

Table 1: Attrition of Science Educators at the State Level

Attrition by Level of Science Position

The following tables examine whether there is a difference in attrition based on the grade level the educator teaches. Middle level educators are defined as those who teach grades 5-8. High level educators are those who teaches grades ranging from 5 -12. For example, an educator assigned to teach grades 5 thru 12 would be counted towards the high level. Again, the high

school level educators experienced a higher attrition rate than the national average at 7.8% attrition over the last four years, further expanding this trend with an attrition rate of 9.3% in 2017. Middle level attrition was slightly lower, averaging 7.6% over the last five years with little change in attrition over the last two years at 8.8% and 8.7% respectively.

Year	Educators	Leavers	Attrition Rate
2013	2304	172	7.5%
2014	2328	172	7.4%
2015	2340	187	8.0%
2016	2294	193	8.4%
2017	2244	208	9.3%
<i>Total</i>	11,510	932	8.1%

Table 2: Attrition of Science Educators by High School Level

Year	Educators	Leavers	Attrition Rate
2013	1408	94	6.7%
2014	1342	96	7.2%
2015	1238	85	6.9%
2016	1179	104	8.8%
2017	1105	96	8.7%
Total	6,272	475	7.6%

Table 3: Attrition of Science Educators by Middle School Level

Attrition of Science Educators by Region of Kansas

Table 4 displays attrition rate by region of the state. The state has been divided into 9 regions, 8 of which are regionally in the state. For example, the southeast corner, and 2 are urban areas in the state; Sedgwick county and Wyandotte/Johnson county. A complete map of the regions can be viewed in Appendix A. In 2017, Sedgwick and east central regions had the largest increase in attrition from the previous year. Sedgwick attrition grew from 8.7% to 11.1% while the east central region increased from 7.9% to 10.1%. The southwest region has the highest average attrition rate over the last five years with 9.7% attrition while the north central region had the lowest average attrition rate at 6.7%.

	2013 Attrition Rate	2014 Attrition Rate	2015 Attrition Rate	2016 Attrition Rate	2017 Attrition Rate	Average Attrition Rate
Northwest	5.9%	6.7%	10.3%	8.5%	9.6%	8.2%
Southwest	7.1%	7.5%	12.4%	10.8%	10.9%	9.7%
North Central	7.6%	8.0%	4.7%	6.7%	6.6%	6.7%
South Central	7.2%	4.7%	6.9%	7.5%	8.8%	7.0%
Sedgwick	6.5%	7.5%	6.6%	8.7%	11.1%	8.1%
Northeast	6.4%	6.6%	7.1%	10.3%	7.3%	7.5%
Kansas City	8.3%	7.9%	8.4%	9.0%	7.7%	8.3%
East Central	6.0%	7.7%	6.8%	7.9%	10.1%	7.7%
Southeast	8.3%	10.0%	7.3%	8.6%	10.1%	8.9%
Total	7.0%	7.4%	7.8%	8.7%	9.1%	8.0%

Table 4: Science Educator Attrition by Region 2013-2017

Science Educator Attrition by Rural vs. Urban Districts

Historically, a higher attrition rate has been reported in urban districts compared to rural districts. The following tables examine the difference between rural and urban districts in Kansas. An urban district is located primarily in one of the following counties: Sedgwick, Shawnee, Johnson, and Wyandotte. There was a slight difference between urban and rural districts with urban districts averaging 8.2% attrition and rural districts averaging 7.7%.

Year	Educators	Leavers	Attrition Rate
2013	1454	106	7.3%
2014	1448	113	7.8%
2015	1413	110	7.8%
2016	1380	126	9.1%
2017	1338	124	9.3%
Total	7033	579	8.2%

Table 5: Science Educator Attrition by Urban Districts

Year	Educators	Leavers	Attrition Rate
2013	2258	160	7.1%
2014	2222	155	7.0%
2015	2165	162	7.5%
2016	2093	171	8.2%
2017	2011	180	9.0%
Total	10,749	828	7.7%

Table 6: Science Educator Attrition by Rural Districts

Science Educator Attrition by Size of District

Table 7, 8, and 9 examine attrition by district size. District size has been defined previously in the special education attrition report with the following parameters. These parameters are followed in the data analysis for mathematics, also, to allow for future comparisons across teaching areas. Large districts are defined as those who employ 100 or more personnel, medium districts employ between 11 to 99 personnel, and small districts are those who employ fewer than 11 people in special education positions. Interestingly, there was no significant difference between district sizes when examining average attrition over the course of five years. Large, medium, and small districts all resulted in close to 7.6% attrition.

Year	Educators	Leavers	Attrition Rate
2013	1544	115	7.5%
2014	1524	91	6.0%
2015	1490	127	8.5%
2016	1450	124	8.6%
2017	1406	137	9.7%

<i>Total</i>	7,414	594	8.0%
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Table 7: Science Educator Attrition by Large District Size

Year	Educators	Leavers	Attrition Rate
2013	1060	72	6.8%
2014	1044	87	8.3%
2015	1019	67	6.6%
2016	992	87	8.8%
2017	964	81	8.4%
<i>Total</i>	5,079	394	7.8%

Table 8: Science Educator Attrition by Medium District Size

Year	Educators	Leavers	Attrition Rate
2013	1108	79	7.1%
2014	1102	90	8.2%
2015	1069	78	7.3%
2016	1029	85	8.3%
2017	979	86	8.8%
<i>Total</i>	5,287	418	7.9%

Table 9: Science Educator Attrition by Small District Size

Conclusion

This report clearly demonstrates the significant challenge that school districts across the state of Kansas face in staffing and retaining science classrooms with highly qualified educators. Overall, the state experiences much higher attrition rates than the national average for science educators, regardless of size of school, urban vs. rural, region of the state, and level of classroom instruction. The high attrition rate of science educators in Kansas reflects the growing trend nationally that the shortage of science educators is caused less by production of new science educators and more by attrition for those educators. It will be important to monitor changes to the attrition rate over the course of the next few years to provide valuable information for school districts on retention efforts as well as higher education institutions preparing the next generation of science educators.

References

Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). *A coming crisis in teaching? Teacher supply, demand, and shortages in the U.S.*. Palo Alto, CA: Learning Policy Institute.

Appendix A

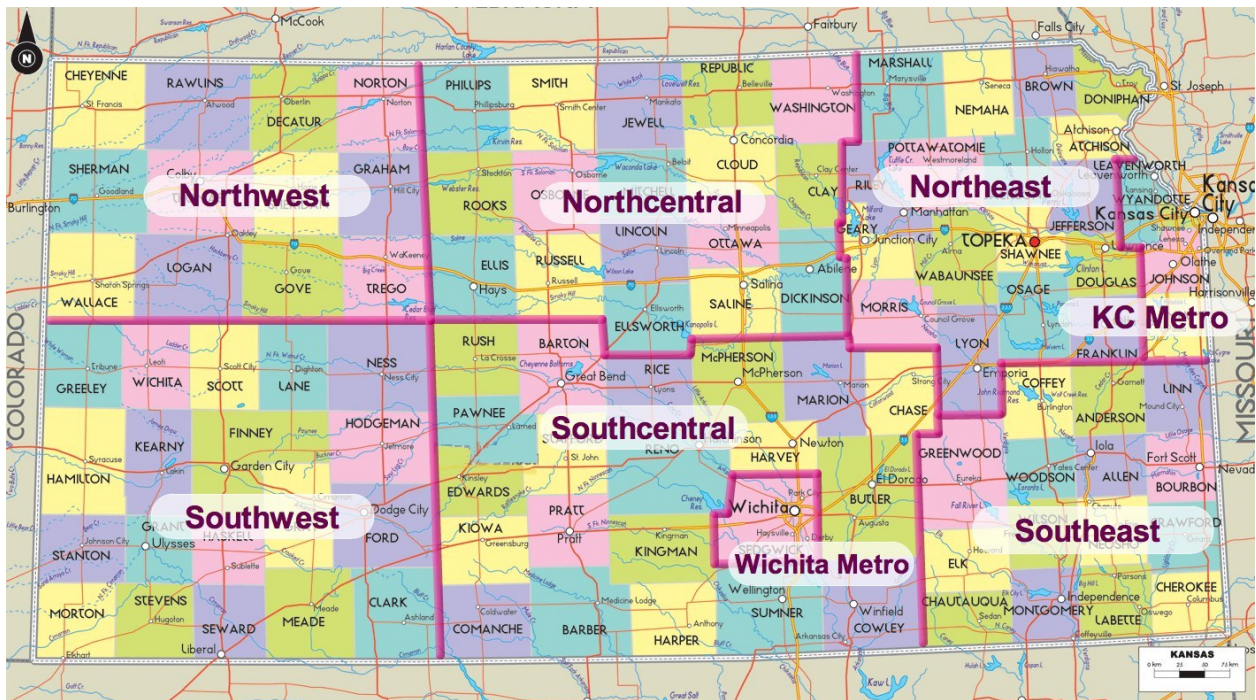


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