GAISE II standard	к	G1	G2	G3	G4	G5	G6	G7	G8 HS
Formulate Statistical Investigative Questions I.A.1 Understand when a statistical		CSTA 1A-DA-07					CCSS.MATH.CONTENT.6.SP.A.1	CCSS.MATH.CONTENT.7.SP.A.1	CCSS.MATH.CONTENT.HSS.IC.A.1
investigation is appropriate			NGSS 2-PS1-1			NGSS 5-PS1-3		NGSS MS-ESS3-5	
	CCSS.MATH.CONTENT.K.MD.B.3								
					DLCS Research [3-5.DTC.c1]				DLCS Research [9-12.DTC.c1]
Formulate Statistical Investigative Questions I.A.2 Pose statistical investigative questions of interest to students where the context is such that		CCSS.MATH.CONTENT.1.MD.C.4	CCSS.MATH.CONTENT.2.MD.D.9	CCSS.MATH.CONTENT.3.MD.B.4	CCSS.MATH.CONTENT.4.MD.B.4	CCSS.MATH.CONTENT.5.MD.B.2			CCSS.MATH.CONTENT.HSS.1D (ALL STANDARDS-It is possible to link most if not all math standards to a data investigation question)
students can collect or have access to all required data	NGSS K-PS2-1 NGSS K-2-ETS1-1	NGSS 1-PS4-3 NGSS K-2-ETS1-1	NGSS 2-PS1-1 NGSS K-2-ETS1-1	NGSS 3-5-ETS1	NGSS 3-5-ETS1	NGSS 3-5-ETS1		NGSS MS-PS3-4	
									CSTA 3B-DA-06
		DLCS Research [K-2.DTC.2] DLCS Data [K-2.CT.2]			DLCS Research [3-5.DTC.c1]				DLCS Research [9-12.DTC.c1]
Formulate Statistical Investigative Questions I.A.3 Pose summary (or descriptive) statistical investigative questions about one variable regarding small,	CCSS.MATH.CONTENT.K.MD.B.3	CCSS.MATH.CONTENT.1.MD.C.4			CCSS.MATH.CONTENT.4.MD.B.4				CCSS.MATH.CONTENT.HSS.1D (ALL STANDARDS-His possible to link most if not all math standards to a data investigation question)
well-defined groups (e.g., subset of a classroom, classroom, school, town) and extend these to include							CSTA2-AP-116-8		
comparison and association statistical investigative questions between variables	NGSS K-PS3-1	NGSS 1-PS4-3	NGSS 2-PS1-1			NGSS 5-PS1-3			
									DLCS Research [9-12.DTC.c1]
Formulate Statistical Investigative Questions I.A.4 Experience different types of questions in statistics: those used to frame an investigation, those used to collect data, and those used to collect data, and those used to guide analysis and interpretation			NGSS 2-PS1-1						CSTA34-AP-17
Formulate Statistical Investigative Questions I.B.1 Recognize that statistical investigative questions can be used to articulate research topics and that multiple statistical investigative questions can be asked about any research topic		CCSS.MATH.CONTENT.1.MD.C.4							
Formulate Statistical Investigative Questions I.B.2 Understand that statistical investigative questions take into account context as well as variability present in data							CCSS.MATH.CONTENT.6.SP.A.1		
Formulate Statistical Investigative Questions I.B.3								CCSS.MATH.CONTENT.7.SP.A.1 CCSS.MATH.CONTENT.7.SP.A.2	CCSS.MATH.CONTENT.HSS.IC.A.1
association statistical investigative questions about a broader									CSTA 3A-AP-19
samples taken from the population								NGSS MS-ESS3-5	
									DLCS Data [9-12.CT.c]
Formulate Statistical Investigative Questions I.B.4 Pose statistical investigative questions that require looking at a variable over time								NGSS MS-ETS1-4	

Formulate Statistical Investigative Questions 1.8.5 Understand that there are different types of questions in statistics: those used to frame an investigation, those used to collect data, and those used to guide analysis and interpretation											
Formulate Statistical Investigative Questions 1.8.6 Pose statistical investigative questions for data collected from online sources and websites, smartphones, fitness devices, sensors, and other modern devices									CCSS.MATH.CONTENT.HSS.1D (ALL STANDARDS-Ris possible to link most infor all math standards and data investigation question)		
Formulate Statistical Investigative Questions I.C.1 Formulate multivariable statistical investigative questions and determine how data can be collected and analyzed to provide an answer									NGSS HS-LS3-1 NGSS HS-FS1-3 NGSS HS-FS3-4 NGSS HS-LS1-3		
Formulate Statistical Investigative Questions I.C.2 Pose summary, comparative, and association statistical investigative questione for summary								CSTA 2 DA 076 8	CCSS.MATH.CONTENT.HSS.IC.B.3		
observational studies, and experiments using primary or								C31K2-DA-07 0-0			
secondary data									NGSS HS-PS3-4		
									DLCS Research [9-12.DTC.c2]		
Formulate Statistical Investigative Questions I.C.3 Pose inferential statistical investigative questions regarding									CCSS.MATH.CONTENT.HISS.ID.C.9		
causality and prediction											
Causality and prediction Collect Data/ Consider Data								CCSS.MATH.CONTENT.7.SP.A.1			
Collect Data/ Consider Data II.A.1 Understand that data are information; recognize that to answer a statistical investigative		CCSS.MATH.CONTENT.1.MD.C.4						CCSS.MATH.CONTENT.7.SP.A.1 CCSS.MATH.CONTENT.7.SP.A.2			
Collect Data/ Consider Data II.A.1 Understand that data are information; recognize that to answer a statistical investigative question, a person may collect data themselves specifically for host number or a nercon may use		CCSS.MATH.CONTENT.1.MD.C.4						CCSS.MATH.CONTENT.7.SP.A.1 CCSS.MATH.CONTENT.7.SP.A.2 CSTA2-DA-086-8	CSTA 3 B DA-06		
Causainy and prediction Causainy and prediction Callect Data/Consider Data II.A.1 Understand that data are information; recognize that to answer a statistical investigative question, a person may collect data themselves specifically for that purpose, or a person may use data that have been collected by other people for another purpose	NGSS K-P53-1 NGSS K-151-1	CCSS.MATH.CONTENT.1.MD.C.4				NGS5 5-ES52-2		CCSS.MATH.CONTENT.7.SP.A.1 CCSS.MATH.CONTENT.7.SP.A.2 CSTA 2-DA-086-8	CSTA 3 B DA-06		
Causainy and prediction Coltect Data/Consider Data ILA1 Understand that data are information; recognize that to answer a statistical investigative question, a person may collect data themselves specifically for that purpose, or a person may use data that have been collected by other people for another purpose	NGSS K-PS3-1 NGSS K-IS1-1	CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1-ESS1-2 DLCS Data [K-2.CT.1] DLCS Data[K-2.CT.5]			DLCS Data [3-5.CT.1]	NGSS 5-ESS2-2		CCSS.MATH.CONTENT.7.SP.A.1 CCSS.MATH.CONTENT.7.SP.A.2 CSTA2-0A-080-8	CSTA3BDA-06		
Causailly and prediction Collect Data/Consider Data ILA.1 Understand that data are information; recognize that to answer a statistical investigative question, a person may collect data themselves specifically for that purpose, or a person may use data that have been collected by other people for another purpose Collect Data/Consider Data ILA.2 Understand how to collect and record information from the group of Interest using surveys and measurements collected reformed.	NGSS K-PS3-1 NGSS K-LS1-1 CCCSS.MATH-CONTENT K.MD.B.3 CCCSS.MATH-CONTENT K.MD.A.1	CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1-ESS1-2 DLCS Data [K-2.CT.1] DLCS Data [K-2.CT.5] CCSS.MATH.CONTENT.1.MD.C.4	CCSS.MATH.CONTENT.2.MD.D.9	CCSS.MATH.CONTENT.3.MD.A.1 CCSS.MATH.CONTENT.3.MD.A.2 CCSS.MATH.CONTENT.3.MD.B.4	DLCS Data [3-5. CT. 1]	NG55 5-E552-2		CCSS.MATH.CONTENT.7.SP.A.1 CCSS.MATH.CONTENT.7.SP.A.2 CSTA2-DA-086-8	SMATH.CONTENT.7.SP.A.2 CSTA.2.DA-086-8 CSTA.3.B DA-06 CSTA.2.DA-086-8 CSTA.3.B DA-06 CSTA.3.B DA-06 CSTA.2.DA-086-8 CSTA.3.B DA-06 CSTA.3.B DA-06		
Caluasily and prediction Caluasily and prediction Collect Data/Consider Data ILA1 Understand that data are information; recognize that to answer a statistical investigative question, a person may collect data themselves specifically for that purpose, or a person may use data that have been collected by other people for another purpose Collect Data/Consider Data ILA2 Understand how to collect and record information from the group of interest using surveys and measurements collected from Observations and simple experiments	NGSS K-PS3-1 NGSS K-IS1-1 CCSS.MATH.CONTENT.K.MD.B.3 CCSS.MATH.CONTENT.K.MD.A.1	CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1-ESS1-2 DLCS Data [K-2.CT.1] DLCS Data[K-2.CT.5] CCSS.MATH.CONTENT.1.MD.C.4	CCSS.MATH.CONTENT.2.MD.D.9	CCSS.MATH.CONTENT.3.MD.A.1 CCSS.MATH.CONTENT.3.MD.A.2 CCSS.MATH.CONTENT.3.MD.B.4	DLCS Data [3-5.CT.1]	NGS5 5-ES52-2		CCSS.MATH.CONTENT.7.SP.A.1 CCSS.MATH.CONTENT.7.SP.A.2 CSTA.2-DA-088-8 CSTA.2-DA-086-8	CSTA 3B DA-06 CSTA 3B DA-06 CSTA 3B DA-06 CSTA 3B DA-06 CSTA 3B DA-06		
Causaily and prediction Collect Data/Consider Data ILA.1 Understand that data are information; recognize that to answer a statistical investigative question, a person may collect data themselves specifically for that purpose, or a person may explore data that have been collected by other people for another purpose Collect Data/Consider Data ILA.2 Understand how to collect and record information from the group of Interest using surveys and measurements collected to proper interest	NGSS K-PS3-1 NGSS K-LS1-1 CCSS.MATH.CONTENT.K.MD.B.3 CCSS.MATH.CONTENT.K.MD.A.1 NGSS K-ESS2-1	CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1-ESS1.2 DLCS Data[K 2.CT.1] DLCS Data[K 2.CT.5] CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1-PS4-1 NGSS 1-P54-1 NGSS 1-P54-3	CCSS.MATH.CONTENT 2.MD.D.9	CCSS.MATH.CONTENT.3.MD.A.1 CCSS.MATH.CONTENT.3.MD.A.2 CCSS.MATH.CONTENT.3.MD.B.4	DLCS Data [3-5.C7.1]	NGSS 5-ESS2-2 NGSS 5-ESS2-2 NGSS 5-PS1-2 NGSS 5-PS1-2		CCSS MATH CONTENT 7.5P A.1 CCSS MATH CONTENT 7.5P A.2 CSTA 2-DA-086-8 CSTA 2-DA-086-8	CSTA 3B DA-06 CSTA 3B DA-06 CSTA 3B DA-06 CSTA 3B DA-06 CSTA 3A AP-19		
Causaily and prediction Causaily and prediction Collect Data/Consider Data LLA_1 Understand that data are information: recognize that to answer a statistical investigative question, a person may collect data themselves specifically for that purpose, or a person may use data that have been collected by other people for another purpose Collect Data/Consider Data LLA_2 Understand how to collect and record information from the group of Interest using surveys and measurements collected for experiments	NGSS K-PS3-1 NGSS K-US1-1 CCSS.MATH.CONTENT K.MD.B.3 CCSS.MATH.CONTENT K.MD.B.1 CCSS.MATH.CONTENT K.MD.A.1	CCSS.MATH.CONTENT.1.MD.C.4 CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1-ESS1-2 DLCS Data [K-2.CT.1] DLCS Data[K-2.CT.5] CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1-PS4-1 NGSS 1-PS4-1 NGSS 1-PS4-3 DLCS Data [K-2.CT.c2]	CCSS.MATH.CONTENT.2.MD.D.9 NGSS 2.PS1-1	CCSS.MATH.CONTENT.3.MD.A.1 CCSS.MATH.CONTENT.3.MD.A.2 CCSS.MATH.CONTENT.3.MD.B.4	DLCS Data [3-5.CT.1]	NGSS 5-ESS2-2 NGSS 5-ESS2-2 NGSS 5-P51-2 NGSS 5-P51-3		CCSS.MATH.CONTENT.7.SP.A.1 CCSS.MATH.CONTENT.7.SP.A.2 CSTA2-DA-086-8 CSTA2-DA-086-8	CSTA 3B DA-06		
Causaily and prediction Causaily and prediction Collect Data/Consider Data ILA.1 Understand that data are information: recognize that to answer a statistical investigative question, a preson may collect data themselves specifically for that purpose, or a person may use data that have been collected by other people for another purpose Collect Data/Consider Data ILA.2 Understand how to collect and record information from the and record information from the observations and simple experiments	NGSS K-PS3-1 NGSS K-IS1-1 CCSS.MATH.CONTENT K.MD.B.3 CCSS.MATH.CONTENT K.MD.B.3 CCSS.MATH.CONTENT K.MD.B.3	CCSS.MATH.CONTENT.1.MD.C.4 CCSS.MATH.CONTENT.1.MD.C.4 DLCS Data [K.2.CT.1] DLCS Data [K.2.CT.5] CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1.PS4-1 NGSS 1.PS4-3 DLCS Data [K-2.CT.2]	CCSS.MATH.CONTENT 2.MD.D.9	CCSS.MATH.CONTENT.3.MD.A.1 CCSS.MATH.CONTENT.3.MD.A.2 CCSS.MATH.CONTENT.3.MD.B.4	DLCS Data [3-5.CT.1] CSTA 1B-DA-07	NGSS 5-ESS2-2 NGSS 5-ESS2-2 NGSS 5-PS1-2 NGSS 5-PS1-3		CCSS MATH CONTENT.7.5P.A.1 CCSS MATH CONTENT.7.5P.A.2 CCSTA.2-DA-086-8 CCSTA.2-DA-086-8 CCSTA.2-DA-086-8	CSTA 3 B DA-06 CSTA 3 B DA-06 CSTA 3A-09		
Causaily and prediction Collect Data/Consider Data ILA.1 Understand that data are information; recognize that to answer a statistical investigative question, a person may collect data themselves specifically for that purpose, or a person may use data that have been collected by other people for another purpose Collect Data/Consider Data ILA.2 Understand how to collect and record information from the group of interest using surveys and measurements Collect Data/Consider Data ILA.2 Understand how to collect and record information from the group of interest using surveys and measurements Collect Data/Consider Data ILA.3 Understand that a variable Collect Data/Consider Data ILA.3 Understand that a variable	NGSS K-PS3-1 NGSS K-DS3-1 CCSS.MATH.CONTENT.K.MD.B.3 CCSS.MATH.CONTENT.K.MD.B.1 NGSS K-ESS2-1 NGSS K-ESS2-1	CCSS.MATH.CONTENT.1.MD.C.4 CCSS.MATH.CONTENT.1.MD.C.4 DLCS Data [K-2.CT.1] DLCS Data [K-2.CT.5] CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1.PS4-1 NGSS 1.PS4-3 DLCS Data [K-2.CT.c2]	CCSS.MATH.CONTENT 2.MD.D.9 NGSS 2.PS1-1 CCSS.MATH.CONTENT 2.MD.D.9	CCSS.MATH.CONTENT.3.MD.A.1 CCSS.MATH.CONTENT.3.MD.A.2 CCSS.MATH.CONTENT.3.MD.B.4	DLCS Date [3-5.C7.1]	NGSS 5-ESS2-2 NGSS 5-P51-2 NGSS 5-P51-3	CCSS.MATH.CONTENT.6.SP.A.2	CCSS MATH CONTENT 7.5PA.1 CCSS MATH CONTENT 7.5PA.2 CCSTA 2-DA-086-8 CCSTA 2-DA-086-8 CCSTA 2-DA-086-8	CSTA 3B DA-06 CSTA 3B DA-06 CSTA 3B DA-06 CSTA 3B DA-06 CSTA 3A AP-19		
Causailly and prediction Causailly and prediction Collect Data/Consider Data LLA.1 Understand that data are information; recognize that to answer a statistical investigative question, a person may collect data themselves specifically for that purpose, or a person may explore collected by other people for another purpose Collect Data/Consider Data LA.2 Understand how to collect and record information from the group of Interest using surveys and measurements collected thy other statistic collected thy collect Data/Consider Data LA.2 Understand how to collect and record information from the measurements collected thy Collect Data/Consider Data LLA.3 Understand that a variable measures thes same characteristic on several individuals or objects and results in data values that may fuctuate	NGSS K-P3-1 NGSS K-L51-1 CCSS.MATH.CONTENT.K.MD.B.3 CCSS.MATH.CONTENT.K.MD.A.1 NGSS K-ESS2-1 CCSS.MATH.CONTENT.K.MD.A.1	CCSS.MATH.CONTENT.1.MD.C.4 CCSS.MATH.CONTENT.1.MD.C.4 DLCS Data [K 2. CT.1] DLCS Data [K 2. CT.5] CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1.P84-1 NGSS 1.P84-1 DLCS Data [K-2.CT.c2]	CCSS.MATH.CONTENT 2.MD.D.9 NGSS 2-PS1-1 CCSS.MATH.CONTENT 2.MD.D.9	CCSS.MATH.CONTENT.3.MD.A.1 CCSS.MATH.CONTENT.3.MD.A.2 CCSS.MATH.CONTENT.3.MD.B.4	DLCS Data [3-5.C7.1]	NGSS 5-FSS2-2 NGSS 5-FS1-2 NGSS 5-FS1-3 NGSS 5-FS1-4	CCSS.MATH.CONTENT.6.SP.A.2	CCSS MATH CONTENT 7.5P.A.1 CCSS MATH CONTENT 7.5P.A.2 CSTA 2-DA-086-8 CSTA 2-DA-086-8	CSTA 3 B DA-96 CSTA 3 B DA-96 CSTA 3 B DA-96 CSTA 3 B DA-96 CSTA 3 A P-19		
Causaily and prediction Causaily and prediction Collect Data/Consider Data LLA.1 Understand that data are information; recognize that to answer a statistical investigative question, a person may collect data themselves specifically for that purpose, or a person may collect data thave been collected by other people for another purpose Collect Data/Consider Data LA.2 Understand how to collect and record information from the group of interest using surveys and measurements collected that Collect Data/Consider Data LA.3 Understand that values that may thus the people of an another purpose Collect Data/Consider Data LA.3 Understand that values that may furcutate Collect Data/Consider Data LLA.4 Understand that values that may furcutate Collect Data/Consider Data LA.4 Understand that values that may furcutate Collect Data/Consider Data LA.4 Understand that values that may furcutate Collect Data/Consider Data LA.4 Understand that values that may furcutate Collect Data/Consider Data LA.4 Understand that values that may furcutate Collect Data/Consider Data LA.4 Understand that values Collect Data/Consider Data LA.4 Understand Col	NGSS K-PS3-1 NGSS K-DS3-1 NGSS K-LS1-1 CCSS.MATH.CONTENT.K.MD.B.3 CCSS.MATH.CONTENT.K.MD.B.1 NGSS K-ESS2-1 CCSS.MATH.CONTENT.K.MD.A.1	CCSS.MATH.CONTENT.1.MD.C.4 CCSS.MATH.CONTENT.1.MD.C.4 DLCS Data [K.2.CT.1] DLCS Data [K.2.CT.5] CCSS.MATH.CONTENT.1.MD.C.4 NGSS 1.PS4-1 NGSS 1.PS4-1 NGSS 1.PS4-3 DLCS Data [K-2.CT.62]	CCSS.MATH.CONTENT.2.MD.D.9 NOSS 2.P51-1 CCSS.MATH.CONTENT.2.MD.D.9	CCSS.MATH.CONTENT.3.MD.A.1 CCSS.MATH.CONTENT.3.MD.A.2 CCSS.MATH.CONTENT.3.MD.B.4	DLCS Data [3-5.C7.1]	NGSS 5-PS1-2 NGSS 5-PS1-2 NGSS 5-P51-3 NGSS 5-P51-4 NGSS 5-P51-4	CCSS.MATH.CONTENT.6.SP.A.2	CCSS MATH CONTENT 7.5PA.1 CCSS MATH CONTENT 7.5PA.2 CCSTA 2-DA-086-8 CCSTA 2-DA-086-8 CCSTA 2-DA-086-8 CCSTA 2-DA-086-8 CCSTA 2-DA-086-8 CCSTA 2-DA-086-8	CSTA 3B DA-06 CSTA 3A AP-19 CSTA 3B AP-12 CSTA 3B AP-12 CSTA 3B AP-12 CSTA 3B AP-14		

Collect Data/ Consider Data II.A.5 Interrogate the data set to understand the context of the variables as they may relate to statistical investigative questions				NGSS 3-ESS2-1		NGSS 5-ESS1-2				CSTA 3B-AP-12
Collect Data/ Consider Data II.A.6 Understand that data are not always pristine but may contain over the mission publics at				NGSS 3-5-ETS1	NGSS 3-5-ETS1	NGSS 3-5-ETS1		CSTA 2-DA-08		
and that decisions have to be made about how to account for these issues					DLCS Research [3-5-DTC-c]					DLCS Abstraction [9-12.CT.a]
Collect Data/ Consider Data II.B.1 Understand that data are information collected and recorded with a purpose and								CSTA 2-DA-08 CSTA 2-DA-07		
can be organized and stored in a variety of structures (e.g., spreadsheets)	DLCS Data [K-2.CT.c4]				DLCS Data [3-5.CT.c]					DLCS Data [9-12.CT.c]
Collect Data/ Consider Data II.B.2 Understand that a sample can be used to answer statistical investigative questions about a								CCSS.MATH.CONTENT.7.SP.A.1 CCSS.MATH.CONTENT.7.SP.A.2		CCSS.MATH.CONTENT.HSS.IC.A.1
population. Recognize the limitations and scope of the data collected by describing the group or population from which the data are collected										NGSS HS-LS4-3
Collect Data/ Consider Data II.B.3 Understand that data can be used to make comparisons								CSTA2-DA-09		CSTA 3A-DA-12
between different groups at one point in time and the same group over time								CCSS.MATH.CONTENT.7.SP.B.3 CCSS.MATH.CONTENT.7.SP.B.4		
								NGSS MS-ESS2-5 NGSS MS-PS2-2		
Collect Data/ Consider Data II.B.4 Recognize that data can be collected using surveys and										CCSS.MATH.CONTENT.HSS.IC.B.3
measurements, and develop a critical attitude in analyzing data collection methods							CSTA2-DA-07			CSTA 3A-AP-19
		DLCS Data [K-2.CT2]						DLCS Research [6-8.DTC.c2]		
Collect Data/ Consider Data II.B.5 Understand that quantitative variables may be either discrete or continuous										
Collect Data/ Consider Data II.B.6 Understand how to interrogate the data to determine how the data were collected from whom the ware								CSTA 2-IC-21		CSTA 3A-IC-24
collected, what types of variables are in the data, how the variables were measured (including units used), and the possible outcomes for the variables							DLCS	Human and Computer Partnerships [6-	3.CS.b1]	
Collect Data/ Consider Data II.B.7 Understand that data can be								NGSS MS-ETS1-3 NGSS MS-PS1-3		
data can be obtained from other sources (secondary data)	I	DLCS Data [K-2.CT.1]			DLCS Data [3-5.CT.c]			DLCS Research [6-8.DTC.c] DLCS Computing Devices [6-8.CS.a]		
Collect Data/ Consider Data II.B.8 Understand how random assignment in comparative experiments is used to control for characteristics that might affect responses										CCSS.MATH.CONTENT.HSS.IC.B.3 CCSS.MATH.CONTENT.HSS.IC.B.5

Collect Data/ Consider Data II.C.1 Apply an appropriate data collection plan when collecting primary data or selecting secondary data for the statistical investigative question of interest.										CSTA 3B-DA-06
Collect Data/ Consider Data II.C.2 Distinguish between surveys, observational studies, and experiments										CCSS.MATH.CONTENT.HSS.IC.B.3
Collect Data/ Consider Data II.C.3 Understand what constitutes good practice in designing a sample survey, an experiment, and an observational study										CCSS.MATH.CONTENT.HSS.IC.B.3 CSTA 3A-IC-24
Collect Data/ Consider Data II.C.4 Understand the role of random selection in sample surveys and the effect of sample size on the variability of estimates								CSTA 2-IC-22 CCSS.MATH.CONTENT.7.SPA.1 CCSS.MATH.CONTENT.7.SPA.2		CCSS.MATH.CONTENT.HSS.IC.A.1
Collect Data/ Consider Data II.C.5 Understand the role of random assignment in experiments and its implications for cause-and-effect interpretations										CCSS.MATH.CONTENT.HSS.IC.B.3 CCSS.MATH.CONTENT.HSS.IC.B.5
Collect Data/ Consider Data II.C.6 Understand the issues of bias and confounding variables in								CSTA 2-AP-15		CSTA 3A-IC-25 CSTA 3A-IC-24
observational studies and their implications for interpretation							DLCS Interpersonal and Societal Impact [6-8.CAS.c5]			CCSS.MATH.CONTENT.HSS.ID.C.9
Collect Data/ Consider Data IL.C.7 Understand practices for handling data that enhance reproducibility and ensure ethical use, including descriptions of alterations, and an understanding of when data may contain sensitive information							CSTA 24C-23			CSTA 3A-IC-29
Collect Data/ Consider Data II.C.8 Understand how concerns about privacy and human subjects							CSTA2-IC-23		CSTA 3A-IC-29 CSTA 3A-DA-10	
may affect the collection and distribution of data		DLCS Safety and Security [K-2.CAS.a4] DLCS Safety and Security [K-2.CAS.a6] DLCS Safety and Security [K-2.CAS.a7]								
Collect Data/ Consider Data II.C.9 Understand that in some circumstances, the data collected or considered may not generalize to the desired population, or this data may be the entire population								CCSS.MATH.CONTENT.7.SPA.1 CCSS.MATH.CONTENT.7.SPA.2		NGSS HS-LS3-3
Analyze the Data III.A.1 Understand that the distribution of a categorical			CCSS.MATH.CONTENT.2.MD.D.10		CCSS.MATH.CONTENT.4.MD.B.4					
variable or quantitative variable describes the number of times a particular outcome occurs						NGSS 5-PS1-4				
Analyze the Data III.A.2 Represent the variability of categorical variables or	CCSS.MATH.CONTENT.K.MD.A.1 CCSS.MATH.CONTENT.K.MD.A.2	CCSS.MATH.CONTENT.1.MD.C.4	CCSS.MATH.CONTENT.2.MD.D.10	CCSS.MATH.CONTENT.3.MD.B.3	CCSS.MATH.CONTENT.4.MD.B.4	CCSS.MATH.CONTENT.5.MD.B.2	CCSS.MATH.CONTENT.6.SP.B.4	CCSS.MATH.CONTENT.7.SP.B.3		CCSS.MATH.CONTENT.HSS.ID.A.1
quantitative variables using appropriate displays (e.g., tables, picture graphs, dotplots, bar		CSTA 1A-DA-06			CSTA 1B-DA-06			CSTA 2-DA-07	r	CSTA 3A-DA-11
graphs)	NGSS K-LS1-1 NGSS K-ESS2-1	Collaboration and Communication 201	NGSS 2-PS1-2			NGSS 5-ESS1-2				
		DLCS Data [K-2.CT.c1]	510.001		DLCS Abstraction [3-5.CT.a]			DLCS Data [6-8.CT.c4]		DLCS Data [9-12.CT.c3]

Analyze the Data III.A.3 Describe key features of distributions for quantitative variables, such as: "Center: mean as the equidable, and median as the middle-ordered value of the data "Variability: range as the data Value, and dispersion as how many units rom the equal share value."Shape: number of clusters, symmetric or not, and gaps					CCSS.MATH.CONTENT.5.MD.B.2	CCSS.MATH.CONTENT.6.SP.A.2 CCSS.MATH.CONTENT.6.SP.A.3 CCSS.MATH.CONTENT.6.SP.B.5.C CCSS.MATH.CONTENT.6.SP.B.5.D	CCSS. MATH. CONTENT.7. SP. B. 3 CCSS. MATH. CONTENT.7. SP. B. 4		CCSS. MATH. CONTENT. HSS. JD. A.2 CCSS. MATH. CONTENT. HSS. JD. A.3
Analyze the Data III.A.4 Recognize distributions can be used to compare two groups							CCSS.MATH.CONTENT.7.SP.B.3 CCSS.MATH.CONTENT.7.SP.B.4		CCSS.MATH.CONTENT.HSS.IC.B.5 CCSS.MATH.CONTENT.HSS.ID.A.2
					CSTA 3A-DA-12				
			NGSS 3-ESS2-1 NGSS 3-LS3-1						
Analyze the Data III.A.5 Observe whether there appears to					NGSS 5-PS1-2			CCSS.MATH.CONTENT.8.SPA.1 CCSS.MATH.CONTENT.8.SPA.2	CCSS.MATH.CONTENT.HSS.ID.B.6
be an association between two variables		CSTA 1A-DA-07							
									NGSS HS-ESS3-5
Analyze the Data III.B.1 Represent the variability of quantitative variables using				CCSS.MATH.CONTENT.4.MD.B.4	CCSS.MATH.CONTENT.5.MD.B.2	CCSS.MATH.CONTENT.6.SP.B.4	CCSS.MATH.CONTENT.7.SP.B.3	CCSS.MATH.CONTENT.8.SP.A.1 CCSS.MATH.CONTENT.8.SP.A.2	CCSS.MATH.CONTENT.HSS.ID.A.1
appropriate displays (e.g., dotplots, boxplots)							CSTA 2-DA-07 CSTA 2-DA-08		CSTA 3A-DA-11
							NGSS MS-LS4-6		NGSS HS-LS4-3
							DLCS Data [6-8.CT.c4]		DLCS Data [9-12.CT.c3] DLCS Research [9-12.DTC.c4].
Analyze the Data III.B.2 Learn to use the key features of distributions for quantitative variables, such as: ^a center: mean as a balance point, and median as the validue-ordered value ^a variability: interquartile range and mean a backute deviation (Marchine)					CCSS.MATH.CONTENT.5.MD.B.2	CCSS.MATH.CONTENT.6.SP.A.2 CCSS.MATH.CONTENT.6.SP.A.3 CCSS.MATH.CONTENT.6.SP.B.5.C CCSS.MATH.CONTENT.6.SP.B.5.D	CCSS.MATH.CONTENT.7.SP.B.3 CCSS.MATH.CONTENT.7.SP.B.4		CCSS.MATH.CONTENT.HSS.ID A.2 CCSS.MATH.CONTENT.HSS.ID A.3 CCSS.MATH.CONTENT.HSS.ID.A.4
* shape: symmetric or asymmetric and number of modes							NGSS MS-PS3-1		
Analyze the Data III.B.3 Use reasoning about distributions to compare two							CCSS.MATH.CONTENT.7.SP.B.3 CCSS.MATH.CONTENT.7.SP.B.4		CCSS.MATH.CONTENT.HSS.ID.A.2
groups based on quantitative variables							NGSS MS-ETS1-3 NGSS MS-LS2-1		
Analyza the Date									
Analyze the Data IIII.8.4 Explore patterns of association between two quantitative variables or two categorical variables: ^a measures of correlation: quadrant count ratio (QCR) ^a comparison of conditional proportions across categorical variables								CCSS.MATH.CONTENT.8.SP A.1 CCSS.MATH.CONTENT.8.SP A.4	CCSS. MATH. CONTENT. HSS. ID. B. 5 CCSS. MATH. CONTENT. HSS. ID. B. 6
Analyze the Data III.C.1 Use technology to subset				CSTA 1B-DA-06			CSTA 2-DA-08 CSTA 2-DA-09		
and filter data sets and transform variables, including smoothing for time series data	<u> </u>						DLCS Data [6-8.CT.c4]		DLCS Data [9-12.CT.c2] DLCS Data [9-12.CT.c4]

Analyze the Data III.C.2 Identify appropriate ways to summarize quantitative or categorical data using tables,									CCSS.MATH.CONTENT.HSS.ID.A.1 CCSS.MATH.CONTENT.HSS.ID.B.6 CCSS.MATH.CONTENT.HSS.ID.A.2
graphical displays, and numerical summary statistics, which includes using standard deviation as a	;								CSTA 3A-DA-11
measure of variability and a modified boxplot for identifying outliers							DLCS Data [6-8.CT.c4]		DLCS Data [9-12.CT.c3]
Analyze the Data III.C.3 Summarize and describe relationships among multiple variables				'				CCSS.MATH.CONTENT.8.SPA.1 CCSS.MATH.CONTENT.8.SPA.2 CCSS.MATH.CONTENT.8.SPA.3 CCSS.MATH.CONTENT.8.SPA.4	CSTA 3A-AP-14
					CSTA 1B-DA-07				CCSS.MATH.CONTENT.HSS.ID.B.6
									NGSS HS-ESS3-5 NGSS HS-LS4-3
Analyze the Data III.C.4 Understand how sampling distributions (developed through simulation) are used to describe the sample-to-sample variability of sample statistics									CCSS.MATH.CONTENT.HSS.IC.B.4 CCSS.MATH.CONTENT.HSS.IC.B.5
Analyze the Data III.C.5 Develop simulations to determine approximate sampling distributions and compute p-values from those distributions	5								CCSS.MATH.CONTENT.HSS.IC.B.4 CCSS.MATH.CONTENT.HSS.IC.B.5
Analyze the Data III.C.6 Describe associations between two categorical variables using measures such as difference in proportions and relative risk									CCSS.MATH.CONTENT.HSS.ID.B.5 CCSS.Math.Content.HSS.CP.A.4
Analyze the Data III.C.7 Describe the relationship between two quantitative variables by interpreting Pearson's correlation coefficient and a least- squares regression line									CCSS.MATH.CONTENT.HSS.ID.C.8 CCSS.Math.Content.HSS.ID.B.6.C
Analyze the Data III.C.8 Use simulations to investigate associations between two categorical variables									NGSS HS-ESS3-6 NGSS HS-ETS1-4 NGSS HS-LS2-1
and to compare groups									DLCS Modeling and Simulation [9- 12.CT.e]
Analyze the Data III.C.9 Construct prediction intervals and confidence intervals to determine plausible values of a predicted observation or a population characteristic									
	-			-				-	
Interpret Results IV.A.1 Use statistical evidence from		CCSS.MATH.CONTENT.1.MD.C.4		CCSS.MATH.CONTENT.3.MD.B.3		CCSS.MATH.CONTENT.6.SP.B.5.C		CCSS.MATH.CONTENT.8.SPA.4	CCSS.MATH.CONTENT.HSS.IC.B.5
analyses to answer the statistical investigative questions and communicate results through							NGSS MS-PS2-4 NGSS MS-LS2-4		
Interpret Results IV.A.2 Make statements about the group							CCSS.MATH.CONTENT.7.SP.A.1	CCSS.MATH.CONTENT.8.SPA.4	CCSS.MATH.CONTENT.HSS.IC.A.1 CCSS.MATH.CONTENT.HSS.IC.B.6
were collected, recognizing that conclusions are limited to these			NGSS 2-PS1-4						
groups and cannot be generalized to other groups							DLCS Research [6-8.DTC.c4]		DLCS Research [9-12.DTC.c5]
INTERPRET RESULTS IV.A.3 Describe the difference between two groups with different							CCSS.MATH.CONTENT.7.SP.B.4		CCSS.MATH.CONTENT.HSS.IC.B.5

	NGSS K-PS3-1	NGSS 1-ESS1-2						
Interpret Results IV.B.1 Use statistical evidence from analyses to answer the statistical investigative questions						CCSS.MATH.CONTENT.8.SP.A.1		
and communicate results with comprehensive answers and some teacher guidance		DLCS Data [K-2.CT.c2]					DLCS Research [9-12.DTC.c5]	
Interpret Results IV.B.2 Acknowledge that looking beyond the data is feasible				CCSS.MATH.CONTENT.6.SP.B.5				
Interpret Results IV.B.3 Generalize beyond the sample providing statistical evidence for the generalization					CCSS.MATH.CONTENT.7.SP.A.1 CCSS.MATH.CONTENT.7.SP.A.2 CCSS.MATH.CONTENT.7.SP.B.4			
and including a statement of uncertainty and plausibility when needed					CSTA 2-DA-09		CSTA 3B-DA-07	
							DLCS Data [9-12.CT.c5]	
Interpret Results IV.B.4 Recognize the uncertainty caused by sample to sample variability					CCSS.MATH.CONTENT.7.SP.A.2		CCSS.MATH.CONTENT.HSS.IC.B.4	
Interpret Results IV.B.5 State the limitations of sample information (e.g., a sample may or may not be representative				CCSS.MATH.CONTENT.6.SP.B.5.A CCSS.MATH.CONTENT.6.SP.B.5.B	CCSS.MATH.CONTENT.7.SP.A.1		CCSS.MATH.CONTENT.HSS.IC.B.6	
of the larger population, measurement variability)					CSTA 2-DA-09			
Interpret Results IV.B.6 Compare results for different conditions in an experiment							CCSS.MATH.CONTENT.HSS.IC.B.5	
Interpret Results IV.C.1 Use statistical evidence from analyses to answer the statistical investigative questions						CCSS.MATH.CONTENT.8.SPA.1 CCSS.MATH.CONTENT.8.SPA.4	CCSS.MATH.CONTENT.HSS.IC.B.6 (AND IC.B.5, ID.A.2, ID.A.3, ID.B.5, ID.B.6)	
and communicate results through more formal reports and presentations				DLCS (DLCS Research [6-8.DTC.c] Collaboration and Communication [6-8.	.DTC.b]	DLCS Data [9-12.CT.c4]	
Interpret Results IV.C.2 Evaluate and interpret the impact of outliers on the results						CCSS.MATH.CONTENT.8.SPA.1 CCSS.MATH.CONTENT.8.SPA.2	CCSS.MATH.CONTENT.HSS.ID.A.3	
Interpret Results IV.C.3 Understand what it means for an outcome or an estimate of a population characteristic to be							CCSS.MATH.CONTENT.HSS.IC.A.2	
plausible or not plausible compared to chance variation							NGSSHS-LS4-3	
Interpret Results IV.C.4 Interpret the margin of error associated with an estimate of a population characteristic							CCSS.MATH.CONTENT.HSS.IC.B.4	
							NGSS HS-ESS2-7	
Interpret Results IV.C.5 Acknowledge the presence of missing values and understand how missing values may add bias to an analysis							CSTA 3A-IC-25	
Interpret Results IV.C.6 Use multivariate thinking to understand how variables impact one another						CCSS.MATH.CONTENT.8.SPA.1 CCSS.MATH.CONTENT.8.SPA.2 CCSS.MATH.CONTENT.8.SPA.3 CCSS.MATH.CONTENT.8.SPA.4	CCSS.MATH.CONTENT.HSS.ID.B.5 CCSS.MATH.CONTENT.HSS.ID.B.6 CCSS.MATH.CONTENT.HSS.ID.B.9	

Interpret Results IV.C.7 Communicate statistical reasoning and results to others in a variety of formats (verbal, written, visual)	a			CCSS.MATH.CONTENT.7.SP.A.2 CCSS.MATH.CONTENT.7.SP.B.4	CCSS.MATH.CONTENT.HSS.IC.B4, ID.A.2, ID.A.3, ID.A.4, ID.B.5, ID.B.6
Interpret Results IV.C.8 Understand how to interpre simulated p-values appropriately	e				