



Tacoma - Pierce County

Health Department

Healthy People in Healthy Communities

www.tpchd.org

Tacoma-Pierce County Health Department's School Inspection Program, Data Collection and Analysis

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Presentation Outline

- What do we do?
- How do we do it?
- Why do it?
- What have we found?
- How can others benefit from what we do?

What do we do?

The essentials of a School Program

- The School Advisory Board
- Plan Review
- Inspection & Data Collection
- Consultation

What do we do? School Advisory Board

- A place to showcase the Health Department's variety of programs
- A place to build relationships
- A place to learn about schools and what is important to them
- A place to connect people

What do we do? Plan Review

- Giving health and safety issues the best chance
- Consulting early with the design team
- Some things just take time
- A chance to explain the H&S perspective
- Represent Health Department's larger health goals

What do we do?

Inspection and Data Collection

- Provide biannual inspection of all schools
- Health Data
- Ambient Data
- Interior Data
- Facility Data – Pre-inspection questionnaire

How do we do it?

Inspection and Data Collection

Health Data



How do we do it?

Inspection and Data Collection

Health Data

		Building Health History				
Date	population	# absent	% absent		asthma #	asthma %
10/10/08	440				32	7.3%
10/6/08		40	9.0909			
10/7/08		34	7.7273			
10/9/08		49	11.136			
10/10/08		44	10			
				PC AVE		PC AVE
TOTALS		167	9.5%	7.5%		5.0%
		4				

How do we do it?

Inspection and Data Collection

Ambient Data

Ambient Conditions										
CO2										
CO2	Max	RH%	Temp							Time
369	1069	51.1	50.3							11:30
387	1087	32.3	58.4							1:35
Particle counts										
0.3	0.5	0.7	1	2	5	10	TOTAL	Time		
71958	3308		249	134	9	0	75658	11:30		
39606	1800		170	101	7	1	41685	1:35		

How do we do it?

Inspection and Data Collection

Interior data

Indoor Environmental Quality Data														Activity
Time	room #nts	CO2	CFM	Temp.	RH %	Particle counts						Flooring		
						0.3	0.5	0.7	1	2	5	10Total		
11:47	office nurse's	5	697	32.3	66.5	42.3	11505	686	107	103	30	6	12437	carpet L
12:00	office	0	612	44	68	37.7	10053	716	124	198	69	22	11182	carpet L
12:08	19	18	1372	10.2	71.9	48	10202	1154	369	558	102	27	12412	carpet L
12:11	17	6	828	23.1	73	37	17412	1114	162	150	19	7	18864	carpet L
12:15	library	1	570	53	69.9	32.7	14043	583	47	33	11	1	14718	carpet L
12:17	14	0	526	67.9	69.2	35	15706	925	110	72	16	5	16834	carpet L
12:20	12	26	978	17.4	70.7	41.8	16758	1049	165	171	32	9	18184	tile L
12:27	10	0	760	27.2	70.8	36	14969	1060	190	215	20	4	16458	tile L
12:58	8	29	910	19.6	72.1	37.3	16935	1598	467	580	93	32	19705	tile M
1:02	4	0	467	110.4	69.4	35.6	10665	672	68	32	1	0	11438	carpet L
1:06	mp1/2	2	620	42.4	70.5	35.5	11424	930	197	179	17	1	12748	tile L
1:11	gym aux	350	826	23.2	69.2	40.1	11361	1886	748	1276	264	56	15591	wood H
1:14	gym	50	544	60.9	69	33.7	10637	776	141	210	42	14	11820	wood H
1:22	G-1	0	566	54.1	69.4	35.8	8680	608	90	85	14	0	9477	carpet L
12:30	P-5	17	2249	5.6	71.2	50.6	14474	2599	1214	1864	293	53	20497	carpet L
12:49	P-4	20	1781	7.5	72.5	41.9	13228	1058	325	497	124	23	15255	carpet L

How do we do it?

- Funding
- Attitude is everything!

Why do we do it?

- WAC 246-366 requirement.
- Make a difference for the community.
- Learn something about schools
 - What is normal?
- Use what we learn to make better schools

What have we found?

Health Data

- Average rate of Absenteeism
- 7.4% n=850

- Average Rate of Student Asthma
- 5.7% n=212

What have we found?

Absenteeism has a seasonal pattern

<u>Season</u>	<u>Min</u>	<u>Ave</u>	<u>Max</u>	<u>Count</u>
<u>Fall</u>	.9%	5.9%	17.6%	248
Winter	1.3%	7.4%	19.2%	201
Spring	.3%	8.5%	38.1%	337

What have we found?

Absenteeism – grade level matters!

High Schools	Min	Ave	Max	Count
Schools	1.3%	14.6%	38.1%	120
Middle Schools	1.3%	8.3%	20.6%	168
Elem Schools	.3%	5.7%	19.2%	558

What have we found?

Asthma Rates – grade level matters!

High Schools	Min	Ave	Max	Count
Schools	1.5%	7.1%	17.8%	28
Middle Schools	.9%	6.5%	13.3%	43
Elem Schools	.5%	5.2%	13.6%	140

What have we found?

Outside Air

	Min	Ave	Max	Count
CO2	238	384	572	350
ASHRAE adjusted	938	1084	1272	350
Temp	33.5	61.1	85	346
RH %	16.7%	46.8	85.4	344

What have we found?

Outside Air

	Min	Ave	Max	Count
Particles	1173	34377	180403	344
Total				
10	0	11	460	58
5	0	43	6497	344
2	14	324	4425	344
1	16	451	2936	344
0.7	27	645	7500	286
0.5	105	2809	24576	344
0.3	816	30212	158407	344

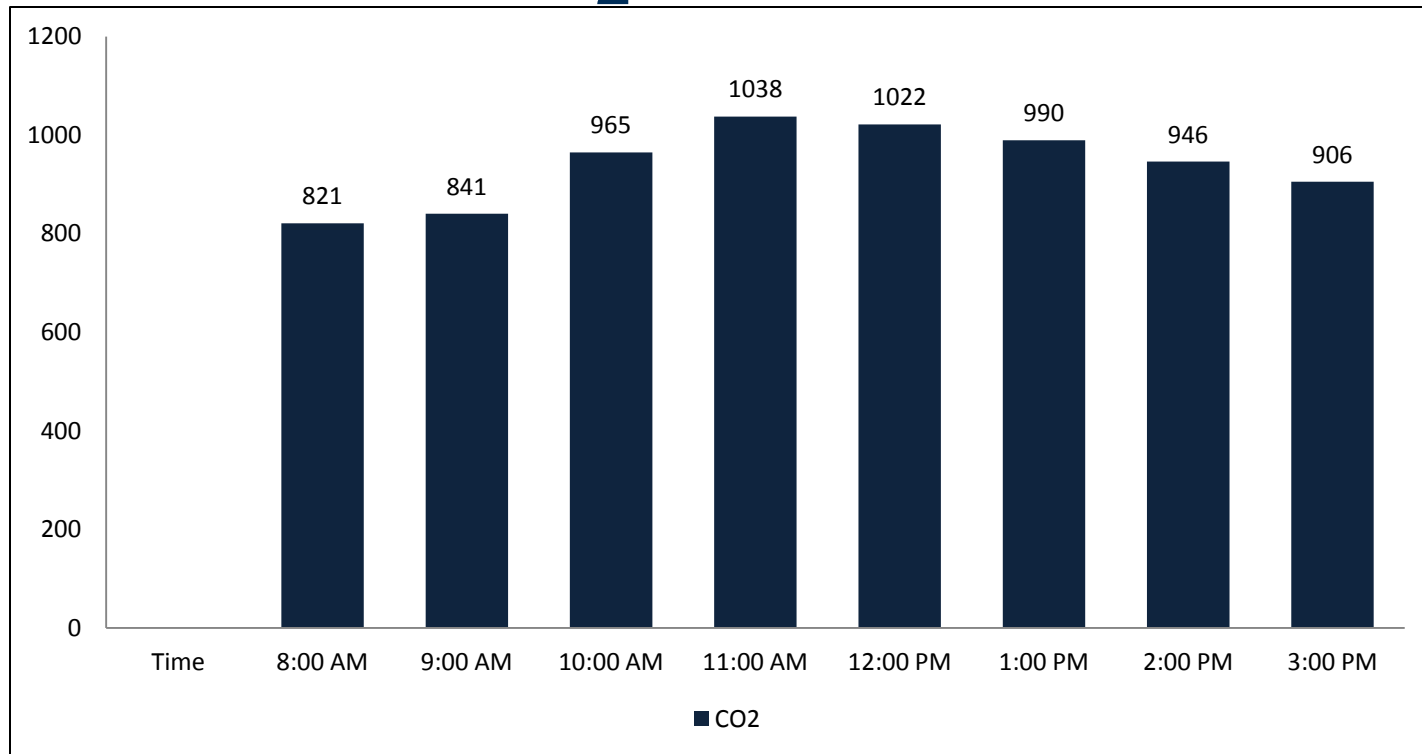
What have we found?

Inside Air

parameter	Level	General	counts	Classrooms	counts	portables	counts
CO ₂ in PPM	Min	370	2659	392	2103	403	219
	Ave	997		1058		1327	
	Max	3751		3751		4471	
Temp In degrees F	Min	54.6	2617	59.5	2072	65	207
	Ave	71.1		71.4		71.7	
	Max	83.0		83.0		78	
Relative Humidity %	Min	5	2526	7.8	1993	24.9	181
	Ave	40.2		40.3		44.2	
	Max	73.9		71.3		75.0	
Ventilation Rate	% over	29%	2536	23%	2003	24%	190
	% under	29%		35%		43%	

What have we found?

CO₂ vs. Time



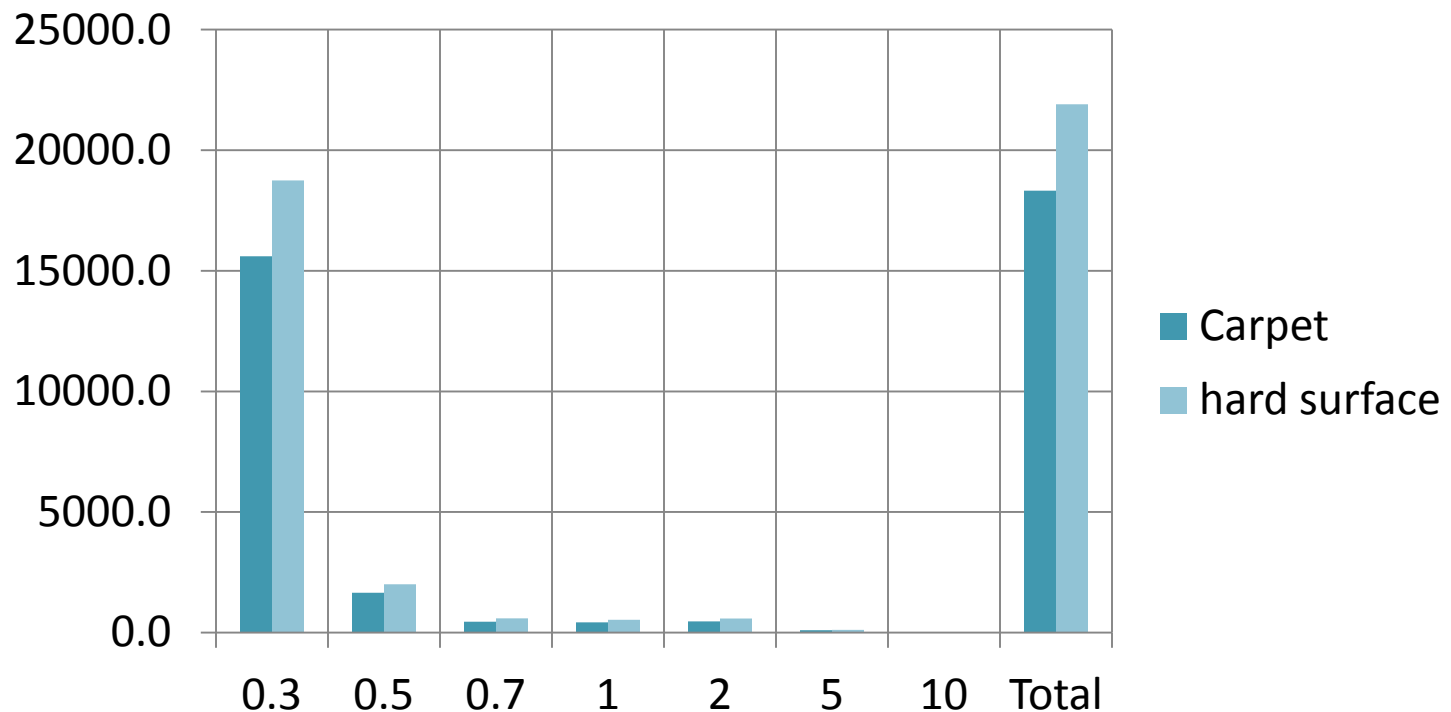
What have we found?

Indoor Air – particle counts

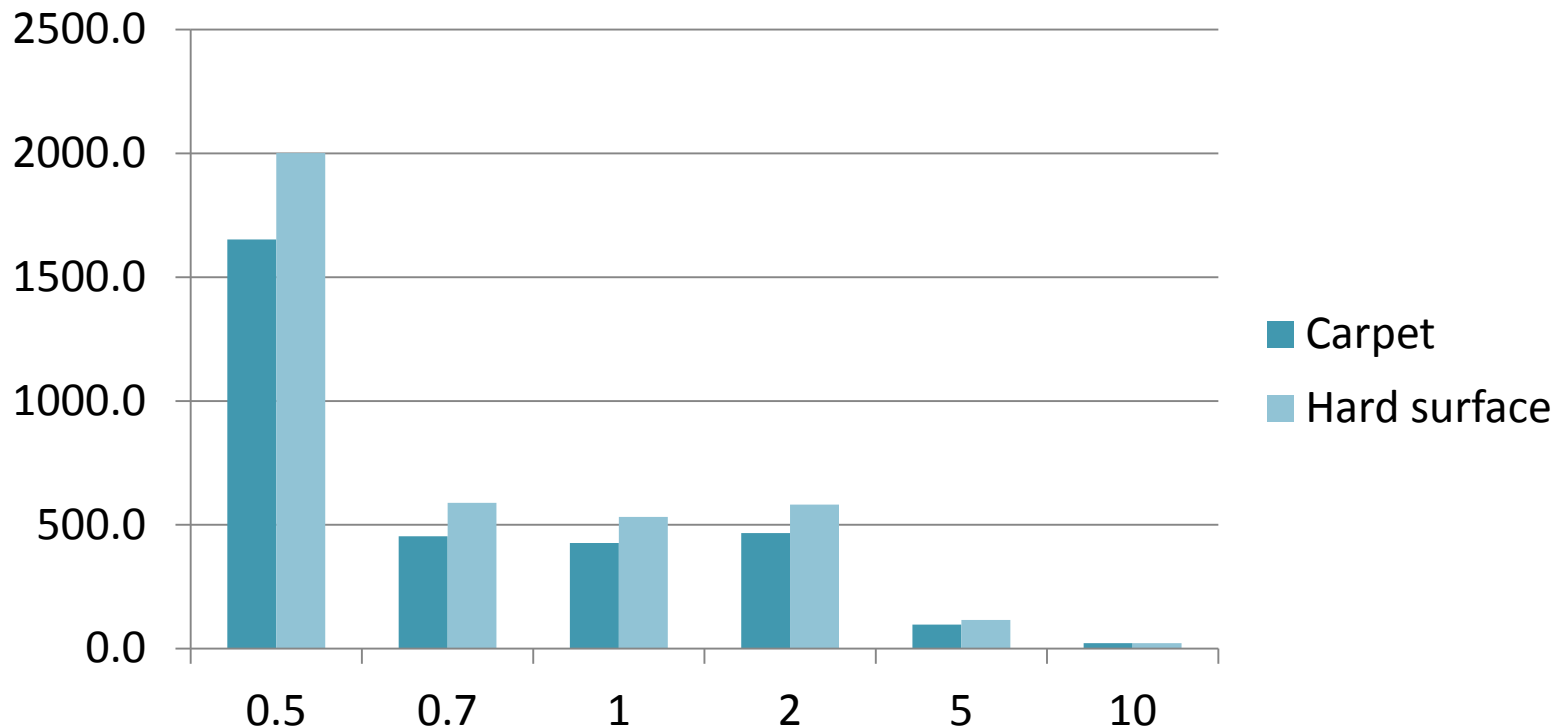
Particle size	0.3	0.5	0.7	1	2	5	10	Total
Outside	30212	2809	645	451	324	43	11	34277
Inside	16756	1805	524	454	448	88	19	19702
Portables	19404	2277	899	784	798	157	19	24260
Carpet	15513	1573	417	397	452	95	20	18072
Hard surface	16677	1789	451	421	443	88	17	19260
Fall	18065	1999	624	466	426	80	19	21438
Winter	15723	1664	450	416	450	92	-	18459
Spring	17750	1907	621	527	479	92	-	20596

What have we found?

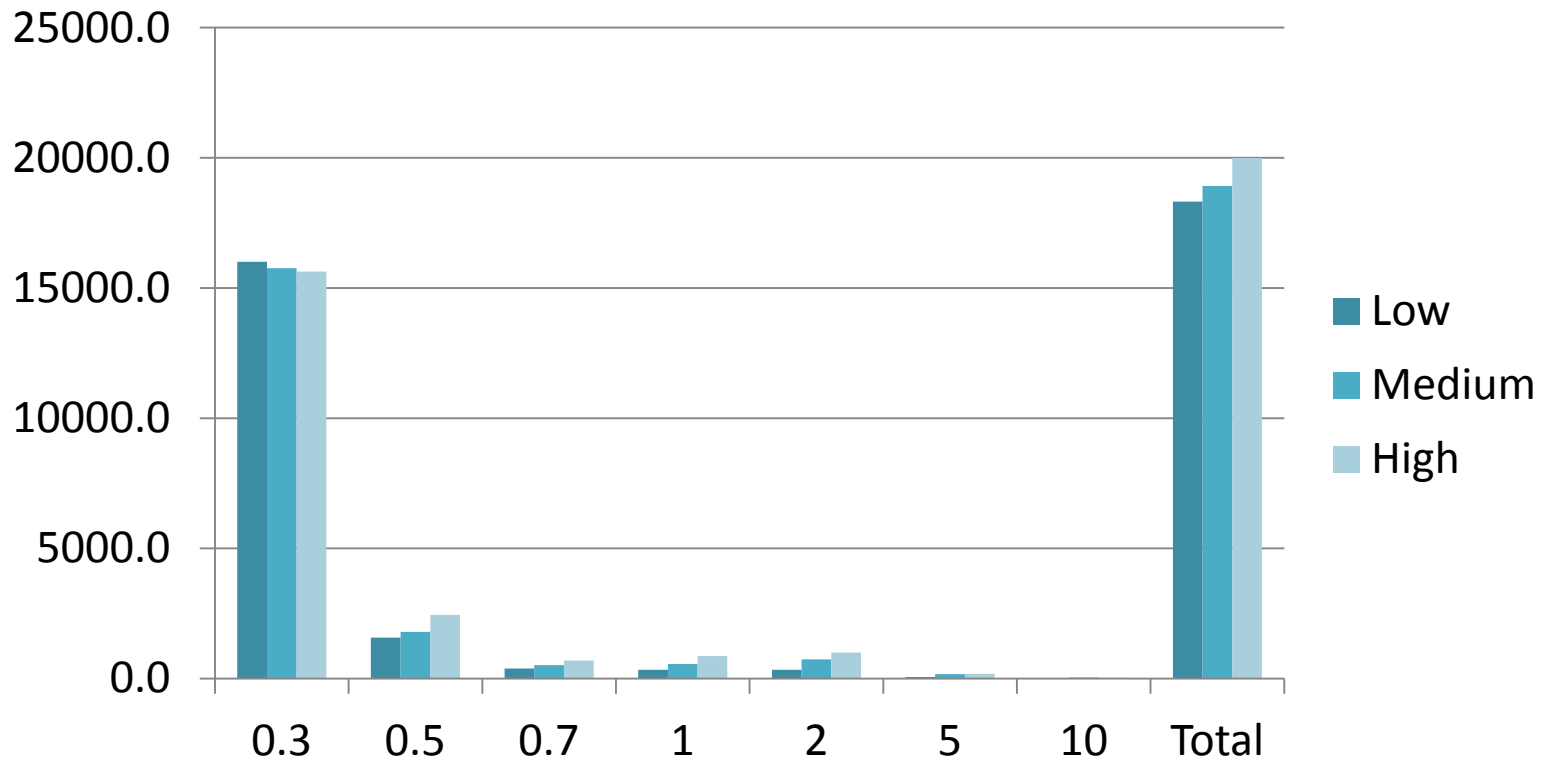
Carpets or Hard surface floors?



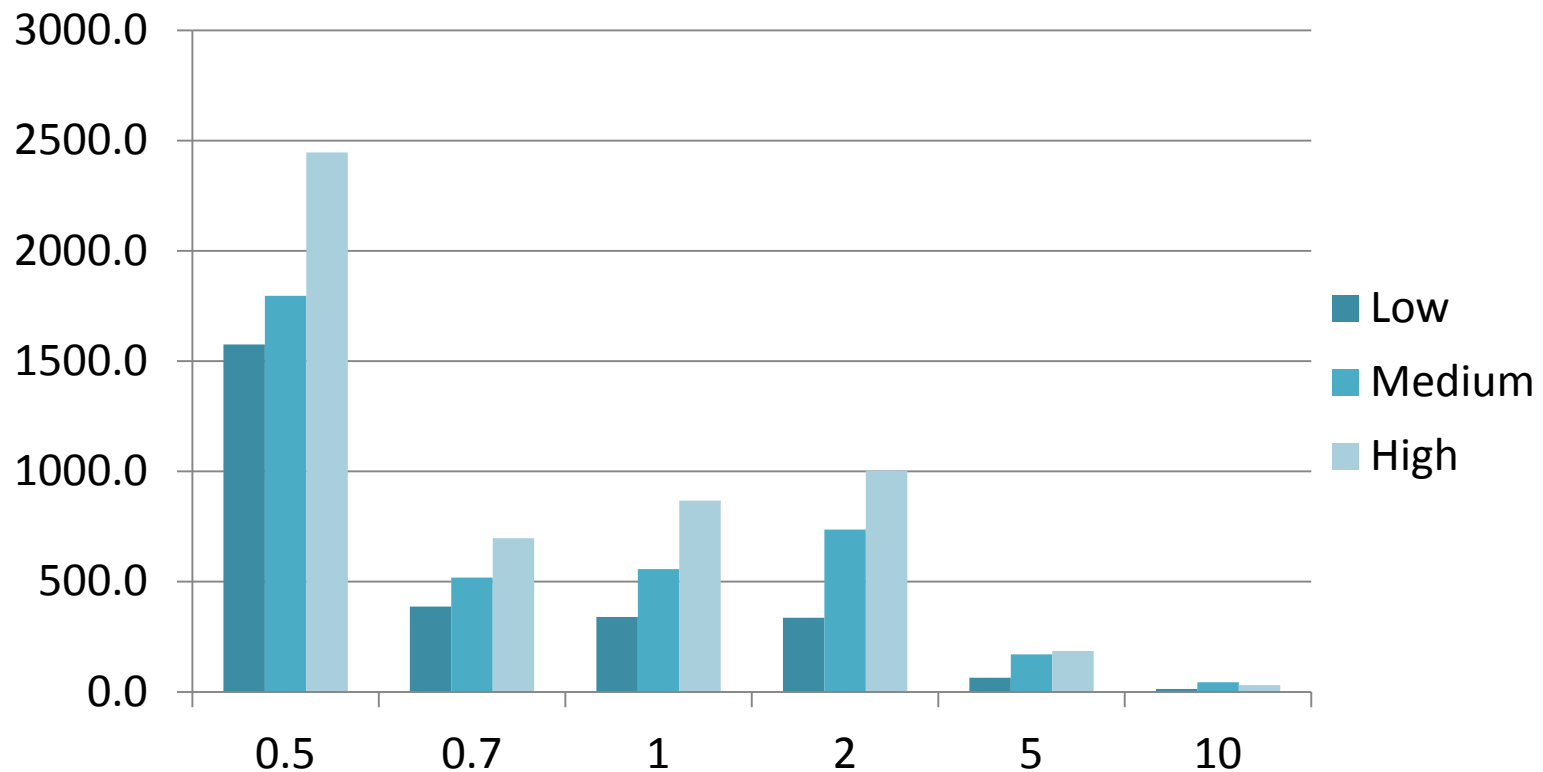
What have we found? Carpets or Hard surface floors?



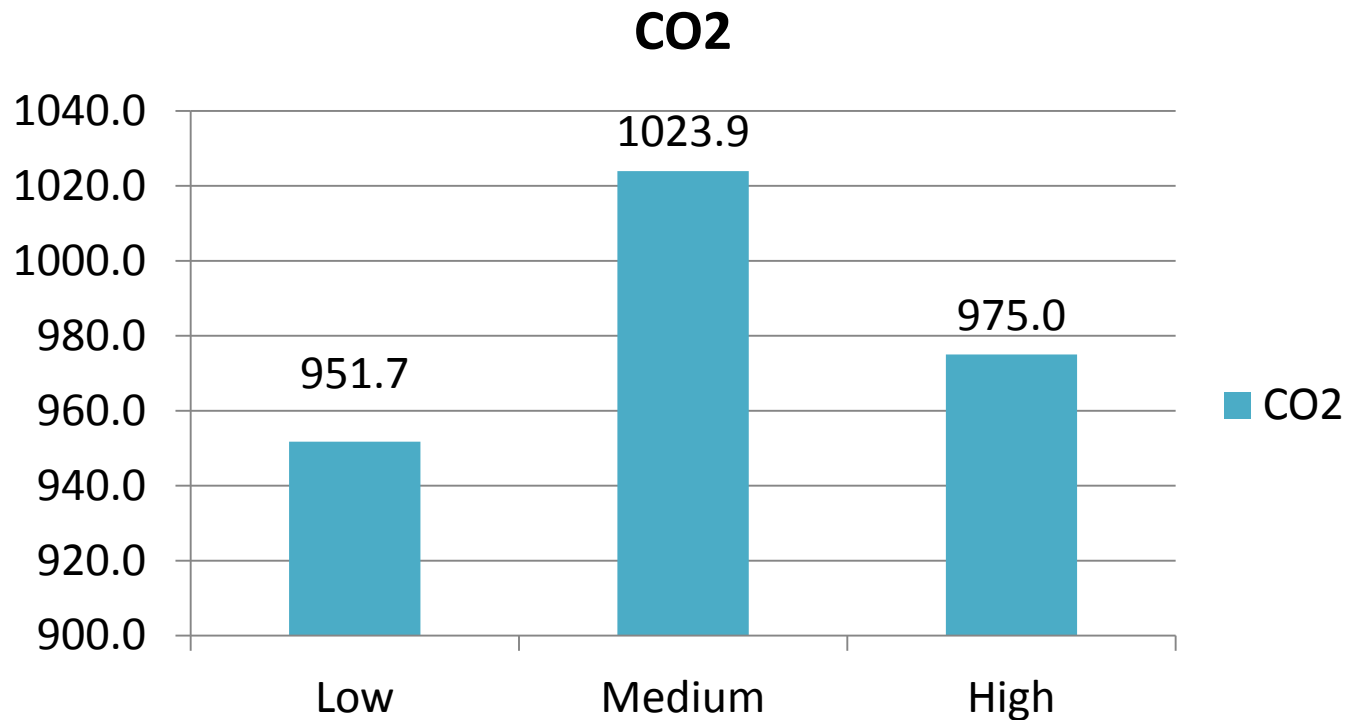
What have we found? particle counts and activity



What have we found? particle counts and activity

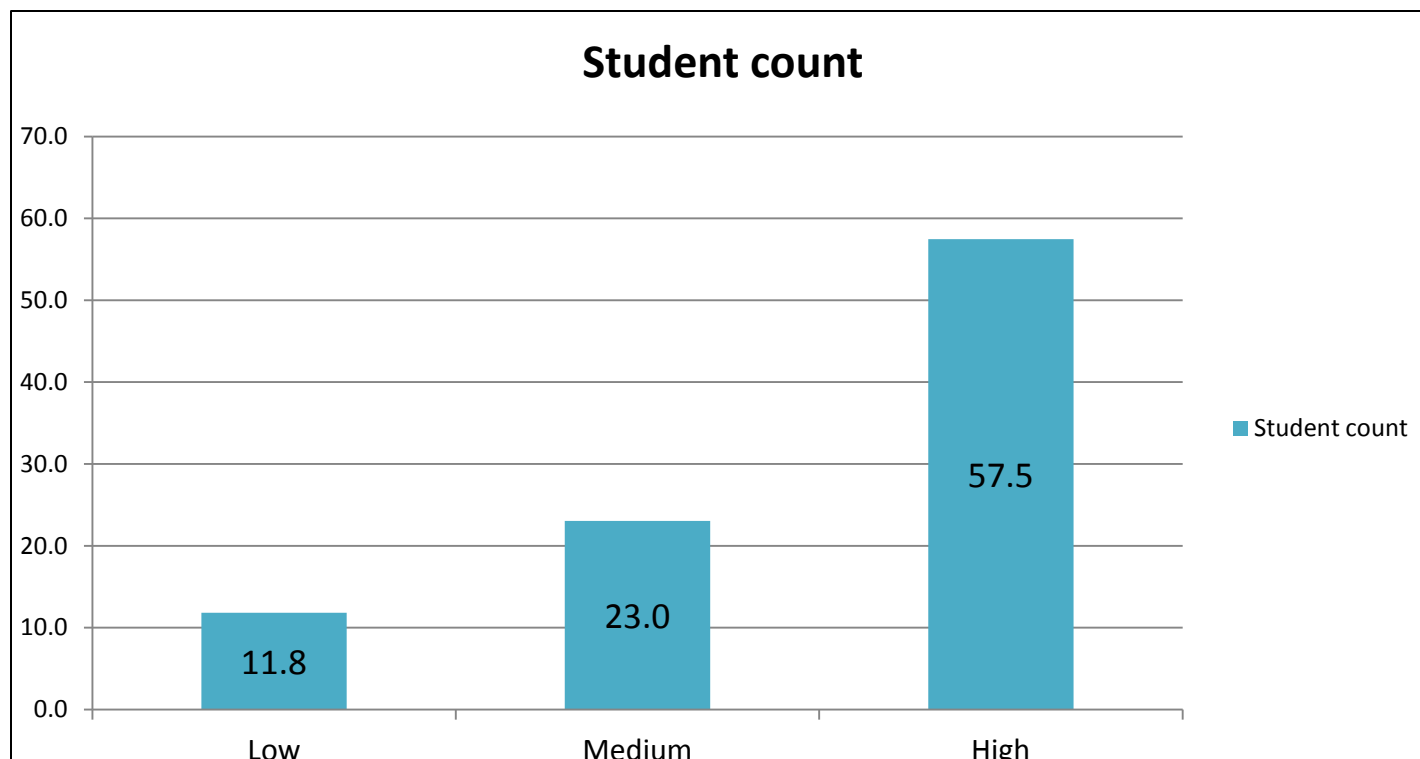


What have we found? CO₂ and activity



What have we found?

Student Count and Activity



How can others benefit from what we do?

- This is a template for a successful school program
- Working collaboratively with schools helps make in-roads for larger HD goals
- This information provides new resources to evaluate IAQ issues
- This information provides a resource for avoiding IAQ problems

Conclusions

- This data can assist us in looking at the school environment in many new ways
- Lots of further work and evaluation of the data is needed to tease out all that it can tell us
- This kind of inspection service is of value to schools, especially as more and more information shows the connection between health and learning

Questions?

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