

S.O.S.
(Shade Our School)

The Shadesters
E-CYBERMISSION

Our Problem

- When our new courtyard is finished, students who are outside before school and at lunch will have to be there
- Shade structures are not in current building plans



Why is this a problem?

Outside in Courtyard

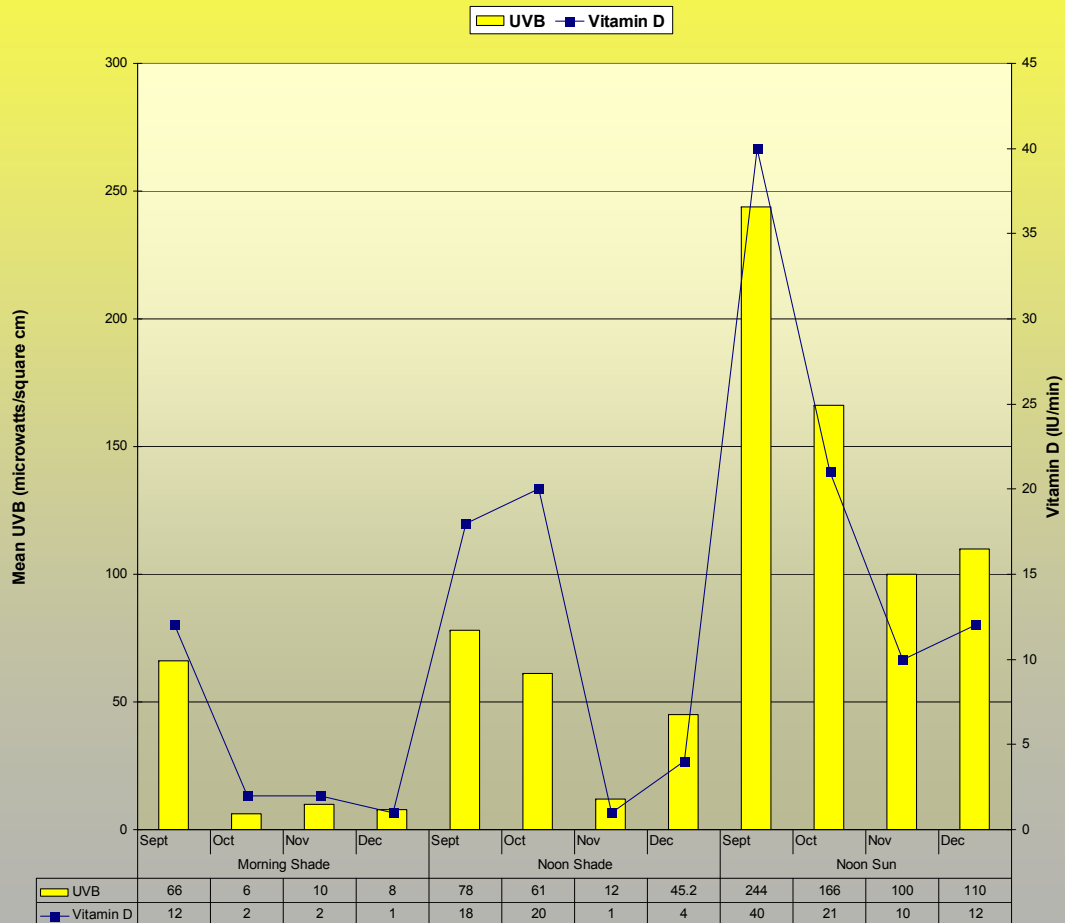
- Students will be really hot on many days without shade
- Students will not be protected from excessive ultraviolet (UV) radiation in sunlight that can damage our health now and in the future

Inside Student Center

- Students will not receive the health benefits of some exposure to UV in sunlight
- We need about 10-15 minutes per day of UV exposure so our body can make vitamin D

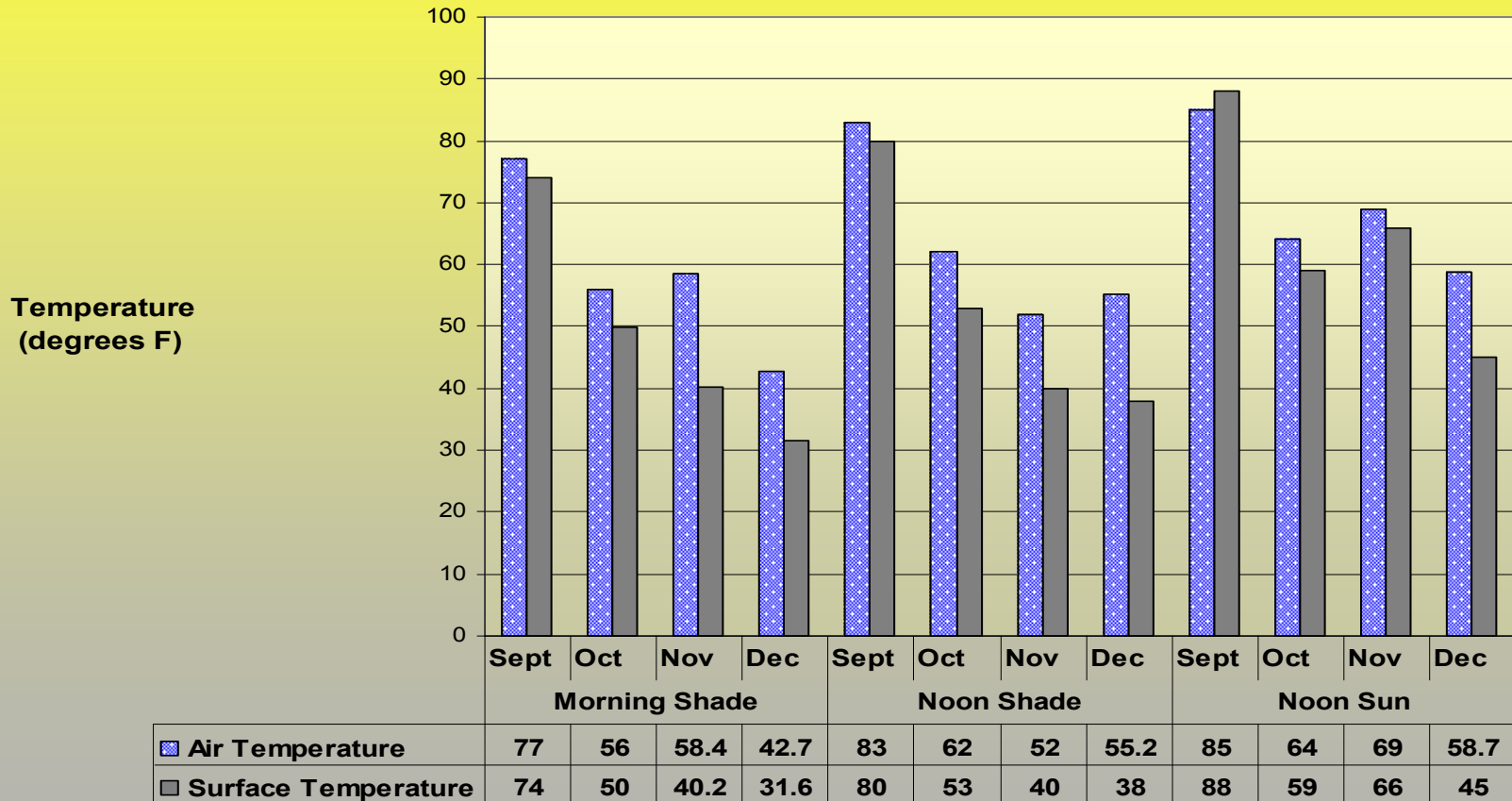
Shade protects you from excessive UVR and allows you to receive some for Vitamin D

Graph 1. Mean UVB and Vitamin D Values in Front of School



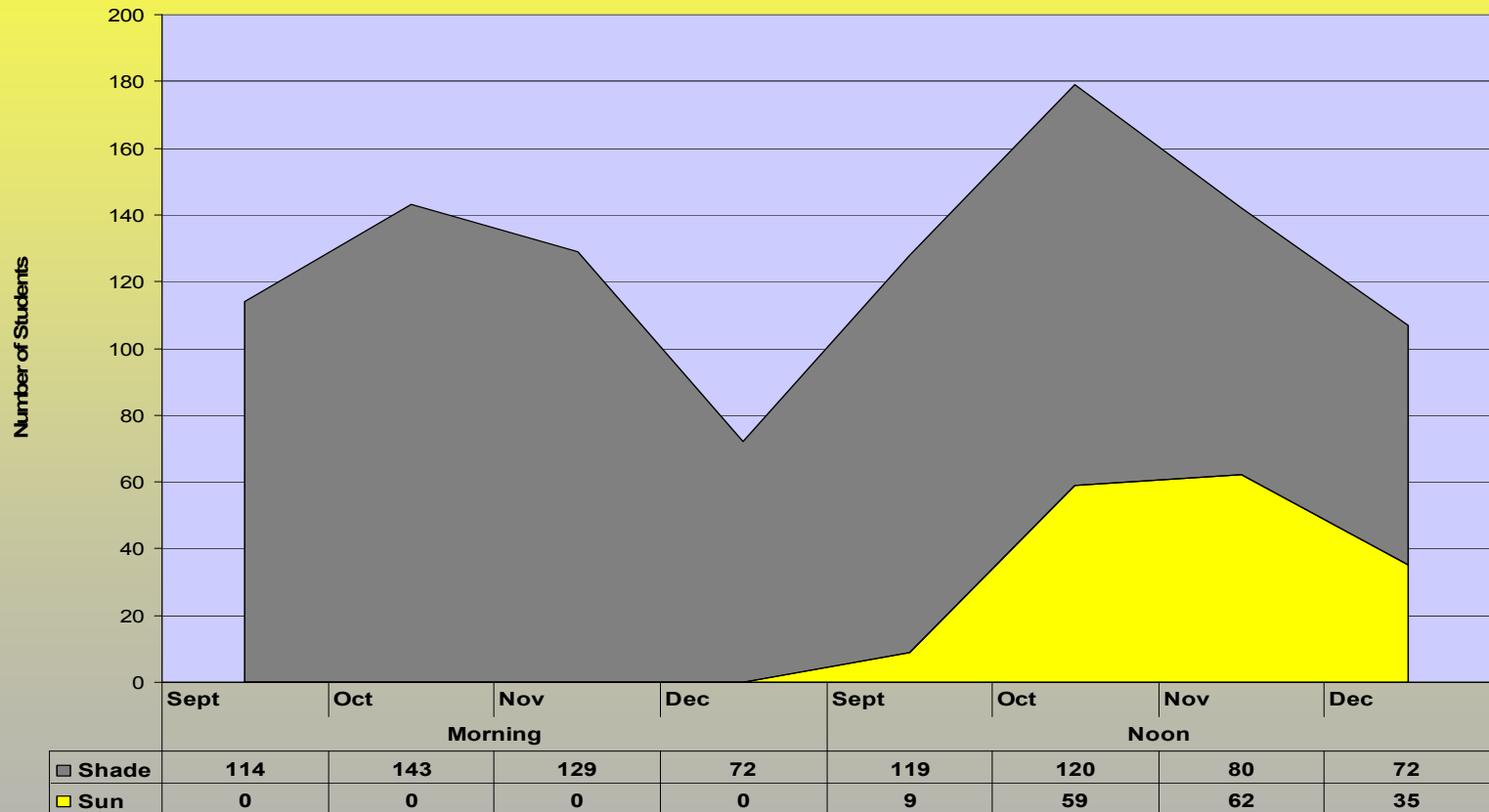
Air and surface temperatures are cooler in the shade

Graph 2. Mean Air and Surface Temperatures in Front of School



More students stand in the shade than sun when outside

Graph 3. Mean Number of Students in Sun and Shade in Front of School



The sunny courtyard is usually hotter with less wind than in front of the school

Table 2. Microclimate Measurements--Front of School versus Courtyard						
Noon Shade in Front of School						
Date	Relative Humidity (%)	Air Temperature (°F)	Surface Temperature (°F)	UVB ($\mu\text{W}/\text{cm}^2$)	Vitamin D (IU)	Maximum Wind Speed (mph)
10/28/2007	46.5	64.9	55	60	10.0	2.0
11/26/2007	39.0	52.0	40	12	0.5	7.0
12/18/2007	31.0	60.5	39	45	4.0	2.0
Noon Shade in Courtyard						
Date	Relative Humidity (%)	Air Temperature (°F)	Surface Temperature (°F)	UVB ($\mu\text{W}/\text{cm}^2$)	Vitamin D (IU)	Maximum Wind Speed (mph)
10/28/2007	38.0	68.3	52	20	3.0	0.8
11/26/2007	39.0	52.0	40	12	4.0	3.0
12/18/2007	31.0	59.0	37	53	5.0	1.0
Noon Sun in Front of School						
Date	Relative Humidity (%)	Air Temperature (°F)	Surface Temperature (°F)	UVB ($\mu\text{W}/\text{cm}^2$)	Vitamin D (IU)	Maximum Wind Speed (mph)
10/28/2007	41.6	69.0	61	217	19.0	3.0
11/26/2007	37.5	54.5	53	110	13.0	3.0
12/18/2007	30.0	61.0	45	133	13.0	3.0
Noon Sun in Courtyard						
Date	Relative Humidity (%)	Air Temperature (°F)	Surface Temperature (°F)	UVB ($\mu\text{W}/\text{cm}^2$)	Vitamin D (IU)	Maximum Wind Speed (mph)
10/28/2007	35.6	70.5	83	202	26.0	0.7
11/26/2007	37.0	59.4	79	100	10.0	0.3
12/18/2007	26.4	57.7	76	137	15.0	6.0

Commercial shade materials block UVR, visible light, and heat

Table 5. Laboratory Testing of Commercial Shade Materials

Light Source	254 nm UVB light			150 W Incandescent Bulb				
Material Type/Color	Mean UVB ($\mu\text{W}/\text{cm}^2$)			Visible Light Intensity (lux)			2 min change in Temperature (F°)	
	Control	Transmitted	% Blocked	Control	Transmitted	% Blocked	Material Surface	Cement under Material
Heavy Duty Maroon	536	12	97.8	1884	250	85.7	51	2
Heavy Duty Gold	442	14	96.8	1884	450	74.3	27	2
Heavy Duty Yellow	468	19	96.0	1884	750	57.2	18	2
Supashade Yellow	493	49	90.1	1884	980	44.0	Not Tested	Not Tested
Heavy Duty Green	505	13	97.4	1884	250	85.7	Not Tested	Not Tested
Supashade Green	485	21	95.7	1884	250	85.7	Not Tested	Not Tested
Heavy Duty Black	520	9	98.3	1884	50	97.1	57	2
Supashade Black	454	23	94.9	1884	130	92.6	Not Tested	Not Tested
							No material (control)	16

What BJHS students told us

Table 1. Online Student Shade Survey Results

On warm days where do you usually go in the morning?				
Answer	% of 7th graders	% of 8th graders	% of 9th graders	% of Combined Groups
Inside	21.6	15.4	13.1	16.7
Outside	78.4	84.6	86.9	83.3
On very cool days, where do you stand in the morning?				
Answer	% of 7th graders	% of 8th graders	% of 9th graders	% of Combined Groups
Inside	60.0	25.8	40.0	42.6
Outside	40.0	74.2	60.0	57.4
On warm days, where do you stand at lunchtime?				
Answer	% of 7th graders	% of 8th graders	% of 9th graders	% of Combined Groups
Inside	51.0	24.2	11.9	29.2
Outside	49.0	75.8	88.1	70.8
On very cool days, where do you stand during lunchtime?				
Answer	% of 7th graders	% of 8th graders	% of 9th graders	% of Combined Groups
Inside	68.3	38.5	32.3	46.6
Outside	31.7	61.5	67.7	53.4
Do you think our new courtyard should be shaded?				
Answer	% of 7th graders	% of 8th graders	% of 9th graders	% of Combined Groups
No	8.3	24.2	8.8	13.5
Yes	91.7	75.8	91.2	86.5
What kind of shade structure would you prefer for our new courtyard? (photos provided)				
Answer	% of 7th graders	% of 8th graders	% of 9th graders	% of Combined Groups
Completely covered	31.8	21.5	22.0	25.3
Giant Umbrellas	30.9	22.6	15.6	23.1
Shade Sails	13.6	14.0	40.4	23.1
Canopies	19.1	28.0	20.2	22.1
No Shade	4.5	14.0	1.8	6.4
How can sunlight affect your health?				
Answer	% of 7th graders	% of 8th graders	% of 9th graders	% of Combined Groups
Helpful and harmful	64.4	56.0	74.3	65.2
Harmful	16.8	22.0	18.8	19.1
Helpful	7.9	7.7	0.9	5.5
No effect	10.9	14.3	5.9	10.2

How can we solve our problem?

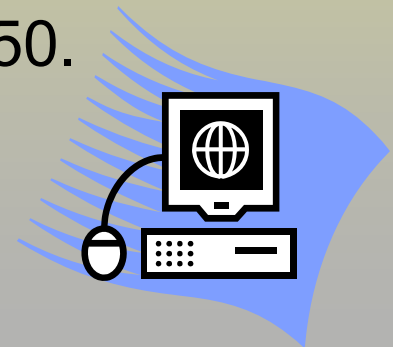
Raise money for shade structures!

What we have done so far:

- Applied for Goody's Good Deeds for Schools Grant (possible \$10,000)
- Obtained application to apply for American Academy of Dermatology Shade Structure Program (possible \$8,000)
- Registered BJHS for www.searchandgive.com
- Registered BJHS at www.terracycle.net
- Planned and scheduled school fundraising activities with Mr. Wilson

Internet searches for BJHS shade

- Visit www.searchandgive.com, click on “Sign In.”
- Sign up for Windows Live ID, select “Byng Junior High School” on the My Charity Settings page.
- Search the Internet, earn up to 10 tickets/day.
- Play word games, win more tickets each day
- Each ticket = \$.01.
- Anyone—students, teachers, parents, other community members—can sign up and earn money for our school.
- Our goal for BJHS at the end of this school year:
300 people, 10 tickets/day, 65 days = \$1950.
- See handout for details, recruit others!



Recycle for BJHS Shade

- **Energy Bar Wrapper Brigade**

BJHS will receive \$.02 per energy bar wrapper we collect
(Candy bar wrappers don't count)

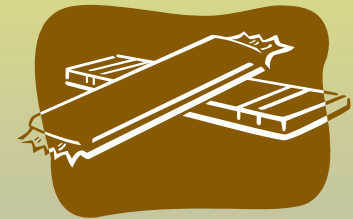
- **Drink Pouch Brigade**

BJHS will receive \$.01 - \$.02 for every drink pouch we collect
(such as Capri Sun)

We registered BJHS at www.terracycle.net

Collection bags and shipping are provided

It costs BJHS nothing, we help the environment when these don't end up in landfills, and we earn funds for shade!



Pay for Special Privileges

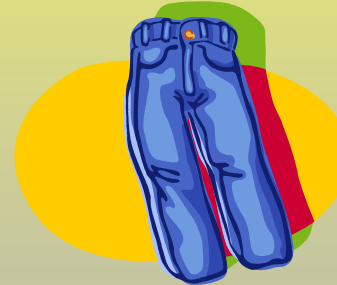
For 1 week

Hats for students Jeans for teachers

\$1/day



\$2/day



January 28- February 1

Karaoke Contest

For one week, BJHS contestants perform in student center during lunchtime

Other students pay \$.50 to watch and vote for the winner

February 25-29

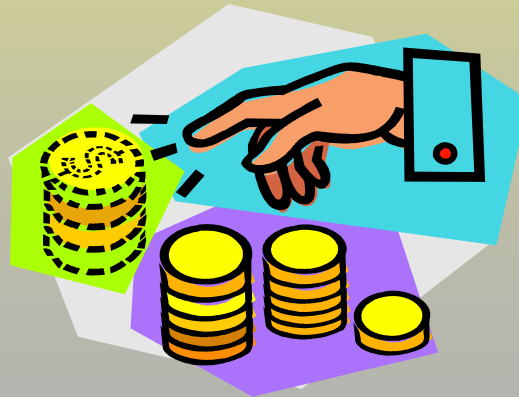


Change Challenge

For one week, each grade level collects and contributes coins

Who will win—7th, 8th, or 9th grade?

March 3-7



Possible BJHS Sports Day

- \$10 entry fee for student teams
- \$1 fee for spectators
- May be scheduled near the end of the year if teachers volunteer to help in the event



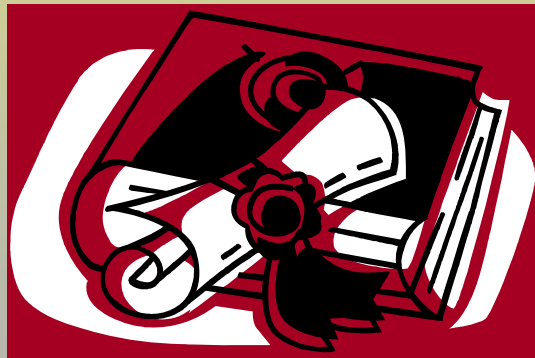
Band Concert

- “CREW” will perform near the end of the year
- \$2 admission for everyone



Yearbook Signing Party

- In the gym during last 2 periods of one day
- Students pay \$2 to attend with yearbook or to sign yearbooks of others
- Refreshments will also be sold



Please get involved.

Together, we can
shade our new courtyard.

