

# Montecalvo

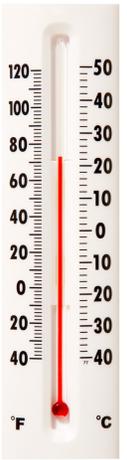
VISUAL SECRETS

## TEMPERATURE

STUDY BY CORNELL UNIVERSITY:

Productivity and Happiness

Reducing the room temperature to 68 degrees Fahrenheit or colder resulted in employees making 44 percent more errors. The optimal room temperature was 77 degrees Fahrenheit. The study stated that when a person is cold, energy is diverted to keep warm and takes away from the ability to concentrate. The study also noted that being warmer also made people happier.



## HYDRATION

Our bodies are comprised of 60 percent water. Water is a conductor of all of the electrical impulses that occur within our bodies. There are millions of impulses occurring each second in our eye-brain process. When a student becomes dehydrated, the eye-brain process will not be optimal. It has been shown that hydrated children have better memories. Headaches, fatigue, and lightheadedness are early signs of dehydration.

### CONTACT ME AT:

Brenda@BrendaMontecalvo.com  
www.BrendaMontecalvo.com

### STUDY AREA

#### Modifying the Study Area

If the study area is difficult to heat without making the entire house too warm, you can use a blanket or small room heater during study times. Have a thermometer nearby to keep track of the temperature.

### BENEFITS OF UNDERSTANDING TEMPERATURE

#### OPPORTUNITY TO RELATE TO MATH

Associate reading temperature with a numberline.

- Keeping the room at the correct temperature teaches the student how to read a thermometer
- Teaches the difference between Fahrenheit and Celsius

### REFERENCES

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## DESK & CHAIR



### COMFORT IS INVALUABLE WHEN LEARNING NEW SKILLS

Darrell Boyd Harmon, PhD...

...studied the process of growth and development in school children, emphasizing the psycho-physiological and visually-centered aspects of learning, and the effect of the environment on those processes. He published work about improvement of ergonomic conditions in the classroom. He determined that improved ergonomics develops better handwriting, cognition, and performance.

### STUDY AREA

#### Modifying the Study Area

Select the correct table and chair height. When uncomfortable, it's difficult to pay attention and concentrate. A correct chair height allows the feet to be flat on the floor with the knees bent at a 90-degree angle. Dangling feet do not allow for proper position, which interferes with the eye-brain process.

### PROPER POSTURE ALLOWS FOR ...

- BETTER BODY TONICITY
- GOOD CIRCULATION
- IMPROVED ALERTNESS
- INCREASED CONCENTRATION
- MORE COMFORT

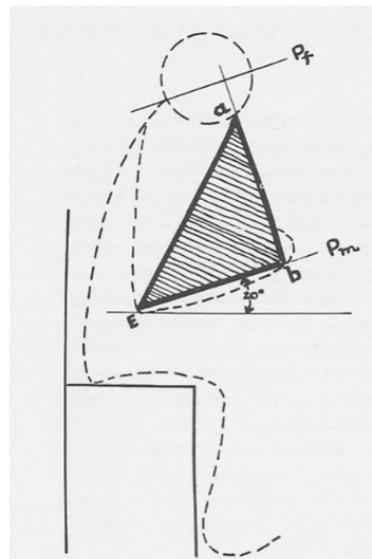
## HARMON'S DISTANCE

The table height should allow the student to write or read the materials on the table at a distance known as the Harmon Distance. In the illustration, "E" to "b" is the distance from the elbow to the knuckles. This is equal to the distance from "a" to "b", which is the distance the eyes should be from the reading or writing material. If the table is too high, the eyes will be too close to the material to be comfortable. If the table height is too low, the student will hunch over the work, which affects circulation and back comfort.

Hirsch, M. "A review of Darrell Boyd Harmon's experimental results." American Journal of Optometry Mar 37 (1960): 121-37.

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VISUAL SECRETS

## LIGHTING

### BEST LIGHT SOURCE: SUNLIGHT OR CANDLELIGHT

The next best is full-spectrum incandescent.

Fluorescent light, common in schools, is the most difficult under which to study and can be very disruptive to a reader's eyes and visual process. It can affect physiological systems and eye-brain processing.

### STUDY AREA

#### Modifying the Study Area

If the study area does not have natural light, use full-spectrum lights. Reduce shiny surfaces and glare.

## DYNAMIC LIGHTING

### POSITIVE EFFECTS ON LEARNING

#### Improves visual comfort

A study done in a first-grade classroom showed that dynamic light had a positive effect on oral reading fluency. Dynamic light is defined as the change in the quality of illumination and color temperature of the light based on the activity being performed.

Dynamic light changes depending on the student's needs throughout the day. For example, one type of lighting should be used for quiet time, and a different type used for times when the student needs to be more alert.

### REFERENCES

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- Basso, M.R. "Neurobiological Relationships Between Ambient Lighting and the Startle Response to Acoustic Stress in Humans." International J of Neuroscience 110:3-4 (01/1/2001): 147-57.
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## POSSIBLE SIDE EFFECTS OF FLUORESCENT LIGHTING

- Eye pain
- Blurred vision
- Difficulty reading or focusing
- Vertigo or dizziness
- Lightheadedness
- Shortness of breath
- Nausea
- Lethargy
- Anxiety
- Feelings of depression
- Disrupted sleep

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