


A Simple and Natural Data System Ogden R. Lindsley NCABA - 9 February, 1995 - Oakland CA

8/5/1

**A Simple and Natural Data System
for
Developmentally Disabled**



Ogden R. Lindsley
Behavior Research Company
366 North 1600 Road
Lawrence, KS 66049-9199
Voice (913) 887-6869
Fax (913) 843-2162

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System Benefits

- Project treatment outcome and date.
- Custom tailor treatment to each client.
- Save time and money in recording.
- Present cases fast - 2 min each.
- Compare different improvements both within a client and across clients.
- Discover unique methods from outliers.
- Compute statistics graphically - (middles, spreads, outlier probabilities, and normal & additive variance).

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Skills Overview

- Pinpointing.
- Counting.
- Timing.
- Charting.
- Fluency Aiming.
- Celeration Aiming.
- Analyzing Effects.
- Discovering from Outliers.

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Pinpointing

- Count only behavior or its results.
- Best to count results if you can, because the behavior is then free to create his/her own unique most comfortable form.
- Do not chart ratings of labels such as:
Bad attitude _____
Scholastic aptitude _____
Work motivation _____
Communicates _____
- Write a behavior or result for each label.

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Lindsley's Dead-man Test for Behavior

- Lindsley's dead-man test separates behavior from non-behavior.
- If a dead man can do it, it isn't behavior, so don't waste time trying to change it.
- Some common non-behavior targets:
Minutes on task _____
Minutes without crying _____
Days without an accident _____
Zero defects _____
- Write behaviors for above non-behaviors.

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Gilbert's Leave-it Test for Results

- Gilbert's Leave-it test separates behavior from its results (accomplishments).
- If you leave it behind when you walk away from the job, it is a result.
- Some common non-result targets:
Words typed per minute _____
Tells student "good work" _____
Safety awareness score _____
Pitches with perfect form _____
- Write the results in the above spaces.

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Other Pinpointing Guides

- Pinpoint a pair - an acceleration target with its deceleration pair.
- Pinpoint several learning channels to foster fluency and generalization.
- Have learner choose their first pinpoints to plan an early learner success.
- Write a pair to count to improve your work:
accelerate: _____
decelerate: _____

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Counting

- Anything you can think of you can count - even unknowns.
- You don't have to define it to count it.
- You can change what you are counting - just mark it on your chart.
- It is easiest to count the "peak" of a feeling or performance - when it intrudes.
- In a few days the counting becomes part of the performance.
- Learners should do their own counting.

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Counters

- Tally marks on Hand, Tape, Work Sheet, Desk Calendar, Day timer, etc.
- Belt bead counters for "native" look.
- Wrist golf counters for frequencies below 30 per minute up to 99 per day.
- Thumb operated belt counter for frequencies above 30 per minute.
- Most machines have counters but don't separate good and bad products.

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Timing

- All counts must be timed.
- Fast performances are best counted in 1, 2, 5, or 10 minute practice periods, charted in the top half of the chart.
- Learners like to buddy-up and time and count their partner's practice.
- Sweep second hands are close enough.
- Slow, behavior problems are best counted over the shift, or behavior day, charted in the bottom half of the chart.

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Charting

- The heart of our data system is one, standard celeration chart (SCC).
- Charting is simple because only one chart must be used for all performances.
- Charting is natural because the chart has a multiply scale and everything in nature multiplies or divides.
- We cannot learn to chart in this overview, so contact our resource people for help if you need it.
- Five year olds learn and teach it to others.

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Charting by Developmentally Disabled

- Precision Teaching started in special ed.
- Our very first self-counters were severely handicapped learners in a primary Montessori classroom.
- The real advantage of the SCC to the disadvantaged is that improvement in academic skills (10 per min) can be compared to improvement in behavior problems (50 per day) on the same chart.
- The SCC can be scored on the back for use by partially sighted clients.

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Fluency Aiming

- Eric Haughton's most powerful discovery was to aim performance at high fluencies (300 to 100 per minute).
- This carries the performance far beyond the usual accuracy into fluency.
- Fluency produces more: Retention, Endurance, Application, Performance standards, Stability, and Confidence.
- The developmentally disabled can by given true confidence in no other way.

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Celeration Aiming

- Maximize learning and treatment by aiming at the slope (celeration) of the chart.
- Johnson and Layng's learners aimed at x2 (doubling) and achieved it. Result was 2 grade levels gain in 16 hours of instruction.
- Learners must share the celeration aim.
- Many Precision Teachers have not aimed at steep celerations and their classes produce flat charts with little learning.

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Analyzing Effects

- Program changes always produce two **independent effects** on performance:
 - A jump up or down the chart, then
 - A turn up or down in the slope.
- They are called:
 - "jump-up", "no-jump", or "jump-down".
 - "turn-up", "no-turn", or, "turn-down".
- Jumps are changes in frequency and Turns are changes in celeration.
- 30% of published charts are counter turns: jump-up turn-down or jump-down turn-up.

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Discovering from Outliers

- On a Standard Celeration Chart you can easily see how far an outlier is above or below the course of other frequencies.
- This distance can be described by the number of bounces it is away.
- This number of bounces translates directly into the statistical probability that the outlier would occur by chance.
- The next slide lists these probabilities.

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Probability of Outliers: Peaches or Lemons



Bounces away from course edge:	Probability is one out of a:	(St. Dev. from mean:)
Half	Thousand	4
One	Million	6
One and a half	Billion	8
Two	Trillion	10

Mnemonic: "Half a bounce is half a ton"

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Closing quotes

- Frequency is universal Skinner 1950
- Self charting Skinner 1938
- Ignore percent Skinner 1969
- Use multiply scale Meadows 1972
- Performance multiplies Lindsley 1972
- Greatest effects by measuring performance Gilbert 1992
- Performance Technology's weak link is measuring Lindsley 1994

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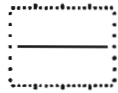
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Name _____ Date _____

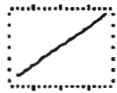
Point Say the celeration of each line (times two, times four).

Ref.Cels-Corners
Num Ord, Page 1
Pics = 11

SYSTEM 4



x1



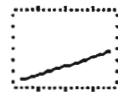
x2



x4



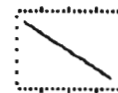
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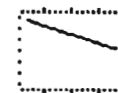
x1.4



x1.1



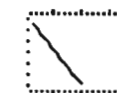
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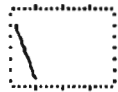


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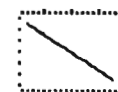
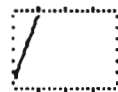
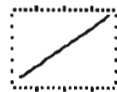
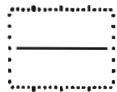


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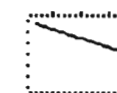
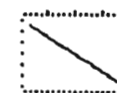
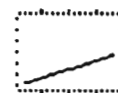
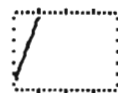
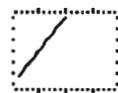
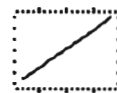
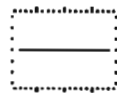
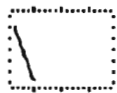
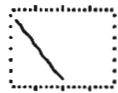
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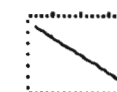
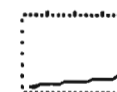
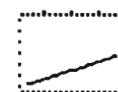
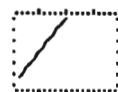
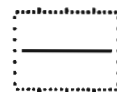
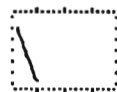
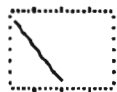
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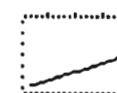
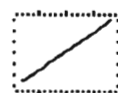
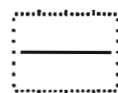
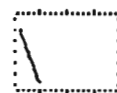
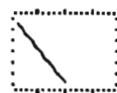
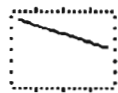
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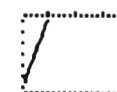
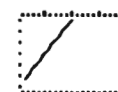
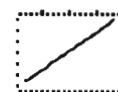
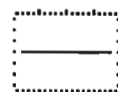
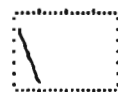
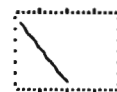
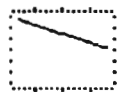
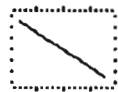
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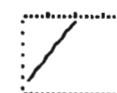
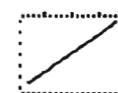
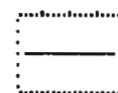
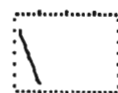
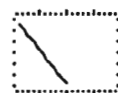
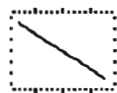
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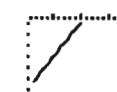
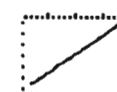
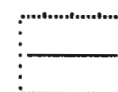
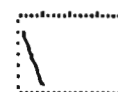
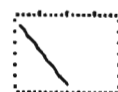
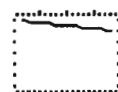
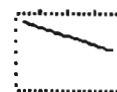
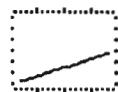
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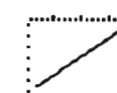
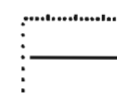
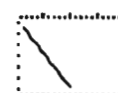
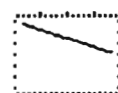
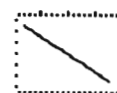
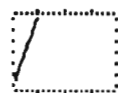
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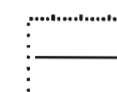
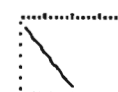
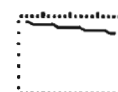
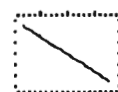
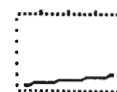
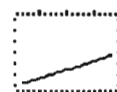
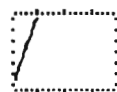
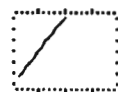
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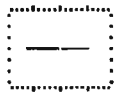
(100)

Name _____ Date _____

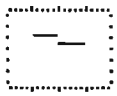
Point Say the Jump-Turn combinations (No Jump No Turn, Jump Down No Turn)

Jump-Turns x1 bef
Num Ord, Page 1
Pics = 9

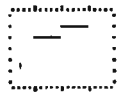
SYSTEM 5



No J No T



J Dn No T



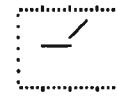
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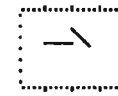
No J T Up



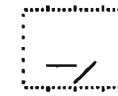
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J Up T Up



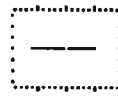
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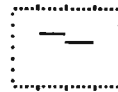
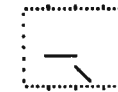
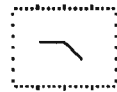
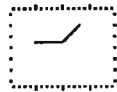
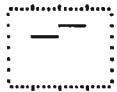
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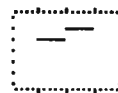
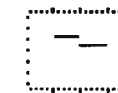
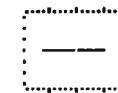
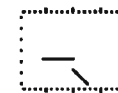
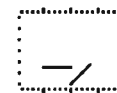
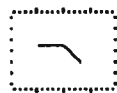
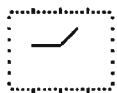
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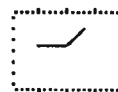
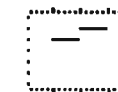
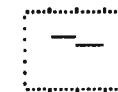
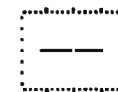
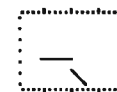
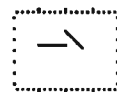
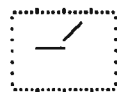
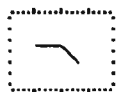
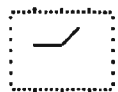
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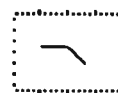
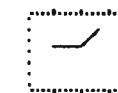
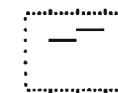
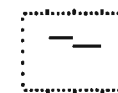
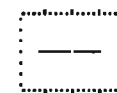
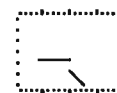
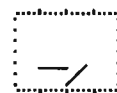
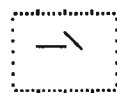
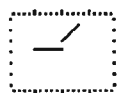
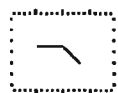
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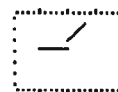
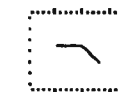
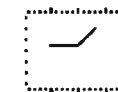
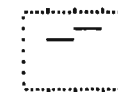
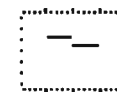
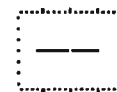
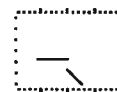
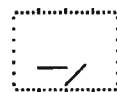
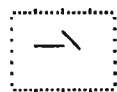
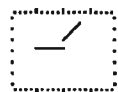
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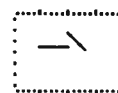
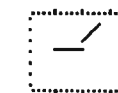
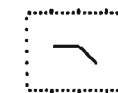
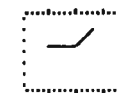
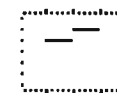
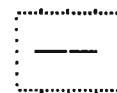
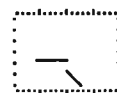
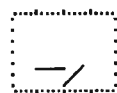
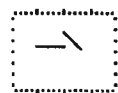
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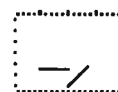
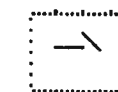
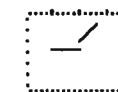
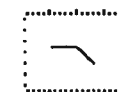
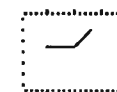
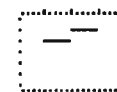
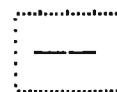
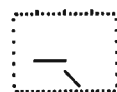
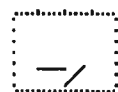
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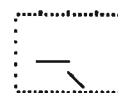
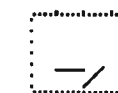
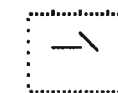
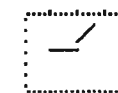
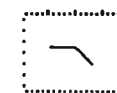
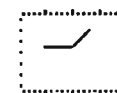
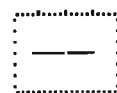
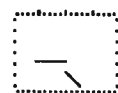
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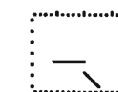
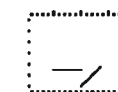
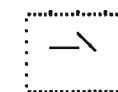
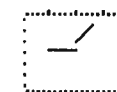
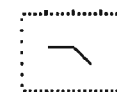
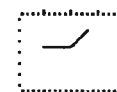
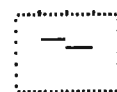
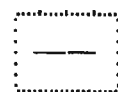
(70)



(80)



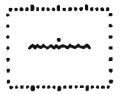
(90)



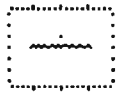
(100)

Name _____ Date _____

Point Say the probability of the outlier: 1 out of a (thousand, million).



thousand



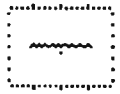
million



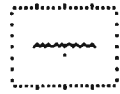
billion



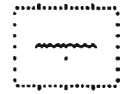
trillion



thou



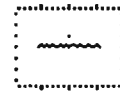
mill



bill



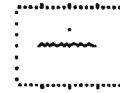
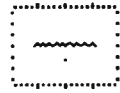
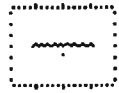
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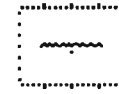
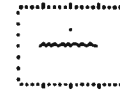
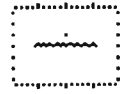
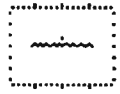
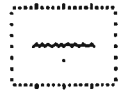
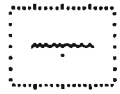
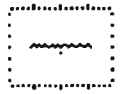
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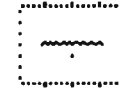
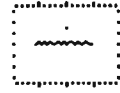
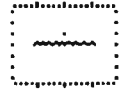
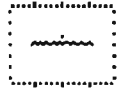
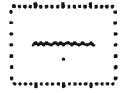
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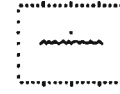
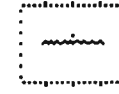
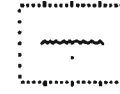
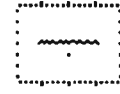
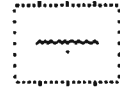
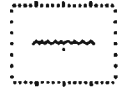
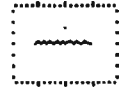
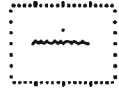
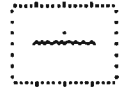
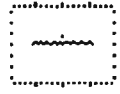
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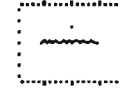
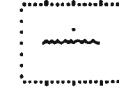
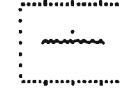
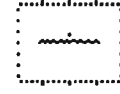
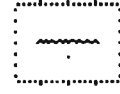
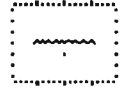
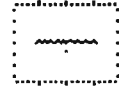
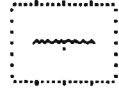
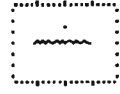
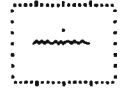
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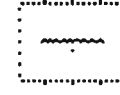
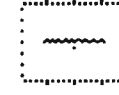
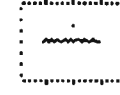
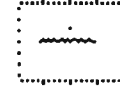
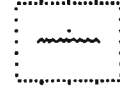
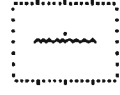
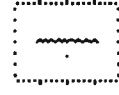
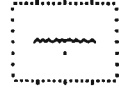
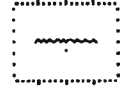
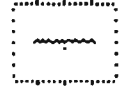
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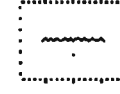
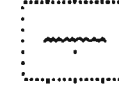
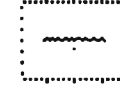
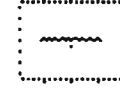
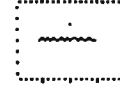
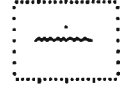
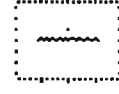
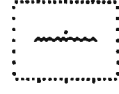
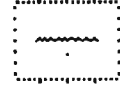
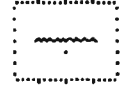
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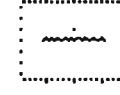
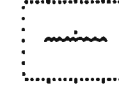
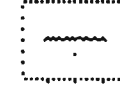
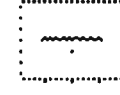
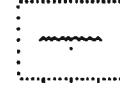
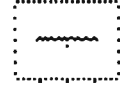
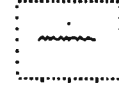
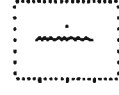
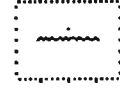
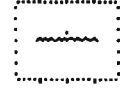
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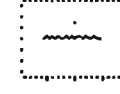
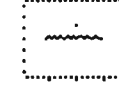
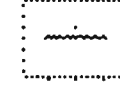
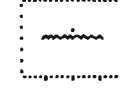
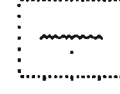
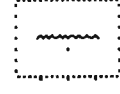
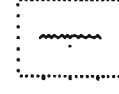
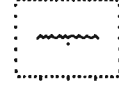
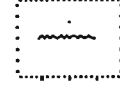
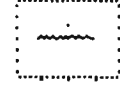
(80)



(90)



(100)



SYSTEM 6

Northern California Precision Teaching Resource Persons NCABA 1995 Oakland, CA

All grades University Industry	Ogden Lindsley Behavior Research Company 366 North 1600 Road Lawrence, KS 66049	W: 913-887-6869 H: 913-887-6869
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All grades	Clay Starlin Western Regional Center 1268 University of Oregon Eugene, OR 97403	W: 503-346-5641 H: 503-345-7458
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Pre-school Kindergarten	Carol Woodiwiss, Director Hopper Creek Montessori School 2141 2nd Street Napa, CA 94559	W: 707-252-8775 H: 707-224-1237
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All grades	Elizabeth Haughton, Director Haughton Learning Center 3166 Jefferson Street Napa, CA 94558	W: 707-224-8863 H: 707-226-7474
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All grades University	Cathy Watkins California State University, Stanislaus Turlock, CA 95380	W: 209-667-3578
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School psychology	Ted Alper Dept. of Educational Psychology California State University, Hayward Hayward, CA 94542	W: 510-835-3351 H: 415-327-7412
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K-12 Spec.Ed. Ages 3-22	Suzanne Fitch, Director of Schools Institute for Effective Education 1820 Dale St. Blvd. San Diego, CA 92102	W: 619-521-3818 H: 619-235-9638
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All grades	Gary Myerson 2805 Ross Lane Escondido, CA 92025	W: 619-747-0888 H: 619-747-0888
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K-12 Reg.Ed. Ages 3-22	Ken Traubman, Executive Director Institute for Effective Education 2118 Nutmeg Street San Diego, CA 92103	W: 619-521-3990 H: 619-235-9638
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BEHAVIOR RESEARCH COMPANY

Catalog Number	Item	Description	Lot Size	Price	Lot Size	Price
STANDARD CELEBRATION CHARTS (blue on white paper)						
DC9-EN	Daily	.001-1000 x 140 days	100	16.00	500	55.00
WC2-EN	Weekly	1-1000000 x 100 weeks	100	16.00	500	55.00
MC2-EN	Monthly	1-1000000 x 120 months	100	16.00	500	55.00
YC4-EN	Yearly	1-1000000 x 100 years	100	16.00	500	55.00
SUMMARY STANDARD CELEBRATION CHARTS (blue on white paper)						
WSC2-EN		.001-1000x 100 weeks	100	16.00	500	55.00
MSC2-EN		.001-1000x 120 months	100	16.00	500	55.00
CHARTING AIDS						
CT9-EN	Chart Tracer	(black on translucent paper)			100	10.00
CHART SETS						
ABC-1	Administrative Behavior Chart Set				1	15.00
CFS-1	Chart Fifty Set				1	15.00
COUNTERS						
99WC	0-99 Wrist Counter				1	9.00
9999BC	0-9999 Belt Counter	Temporarily out of stock -----				
99BBM	0-99 Belt Bead Marker				1	2.00
99PN	0-99 Pencil Numberer				1	1.00
WTB	Wrist Tally Board (with 1 pad cards)				1	3.00
WTBP	Wrist Tally Board Pads (30 cards in each pad)				12	6.00
TCB-1	Tally Card Box (files 250 cards)				1	4.00
TIMERS						
60mBB	60 Minute Belt Buzzer				1	15.00
120mBB	120 Minute Belt Buzzer				1	20.00
6v60mDD	6 or 60 Minute Desk Dinger				1	20.00
12hDRCs	12 Hour Direct Reading Clock in Seconds				1	20.00

BOX 3351 • KANSAS CITY • KS • 66103

Catalog Number	Item	Size	Lot Price
TRANSPARENCIES (Printed on 7.5 mil mylar)			
CM0075	Clear Mylar	1	2.50
CFM-4	Celeration Finder (red on clear)	1	3.50
SRM-4	Scale Reader (red on clear)	1	4.50
DCM-9EN	Daily Chart - Per minute (blue on clear)	1	4.50
WCM-2EN	Weekly Chart (blue on clear)	1	4.50
MCM-2EN	Monthly Chart (blue on clear)	1	4.50
YCM-1EN	Yearly Chart (blue on clear)	1	4.50
WSCM-2EN	Weekly Summary Chart (blue on clear)	1	4.50
MSCM-2EN	Monthly Summary Charts (blue on clear)	1	4.50
FSM-6	Frequency Sheet (blue on clear)	1	4.50
APPSM-1	Accuracy Pair Planning Sheet (blue on clear)	1	4.50
CLASSIC 1972 TRANSPARENCIES (Printed on 7.5 mil mylar)			
PM-SS	PBM System Set (black on clear)	9	18.00
PM-LS	PBM Language Set (black on clear)	3	6.00
Pm-PS	PBM Principles Set (black on clear)	15	30.00
PM-HS	PBM History Set (black on clear)	4	8.00
PM-MS	PBM Measurement Set (black on clear)	7	14.00
PM-CS	PBM Celeration Set (black on clear)	4	8.00
OVERHEAD PROJECTOR AIDS			
TWB-1	Transparency Wash Box	1	1.00
THP-4	Transparency Holder	1	35.00
COMPUTER SOFTWARE			
TPS-All	Text PracticeSheeter- Apple II-Zero Bros.	1	125.00
TPS-IBM	Text PracticeSheeter-IBM - Zero Bros.	1	125.00
TPS-MAC	Text PracticeSheeter-MAC - Zero Bros.	1	125.00
GPS-MAC	Graphics PracticeSheeter-MAC- Zero Bros.	1	125.00
GPS-MD-SCC	GPS-MAC Doc Disk - 11 SCC sheets - Lindsley.	1	35.00

PRICE LIST • 1994

Catalog Number	Item	Size	Lot Price
COMPUTER SOFTWARE - Continued			
MWD-PTRF	MSWord Doc - Prec.Tchg. Refs. - Eshleman	1	35.00
MEXM-DC9	MSExcelMacro - Daily Chart 9-EN - Stocum	1	35.00
PURCHASING INFORMATION			
Purchase Order:	Merchandise sold only in lot sizes listed. All orders must be accompanied with a purchase order number.		
Telephone Orders:	Our prices cannot support telephone orders at this time.		
Shipping:	Shipment via parcel post unless otherwise requested within 10 days of receipt of order. Postage and handling charges are added to the prices listed.		
Discounts:	10% each lot of 10; 20% each lot of 100; 30% each lot of 1,000 of same item.		
Terms:	Billing date is the 10th of each month. There is a finance charge computed at 1.5% monthly or an annual percentage rate of 18% on previous unpaid balance at time of billing.		
Payment:	Returned unless our invoice number is on your check.		
Replacements:	All merchandise found defective upon receipt will be replaced only if returned within 30 days from date of shipment. Counters and timers showing wear will not be replaced.		
Refunds:	Returned merchandise will not be accepted beyond 30 days from date of shipment. Merchandise costs will be credited, but not shipping and handling costs.		
Prices:	Prices are subject to change without notice and are billed at current prices at time of shipment.		
Quality	We maintain the highest possible product quality. We buy top-of-the-line paper and mylar. Even though monochrome, our blue lined charts are printed by color presses at high cost so our charts will perfectly register from printing to printing.		
	Such high product quality standards do not permit a wide range of customer service without increasing prices. For this reason we must limit sales to mail order only.		

SYSTEM 10