



Orientation for SRO's

This Power Point is archived at

www.legalsciences.com/about

Massachusetts newspaper article:

Within the first six months after getting a license, nearly 50% of teen drivers were involved in an accident.

Hypothesis:

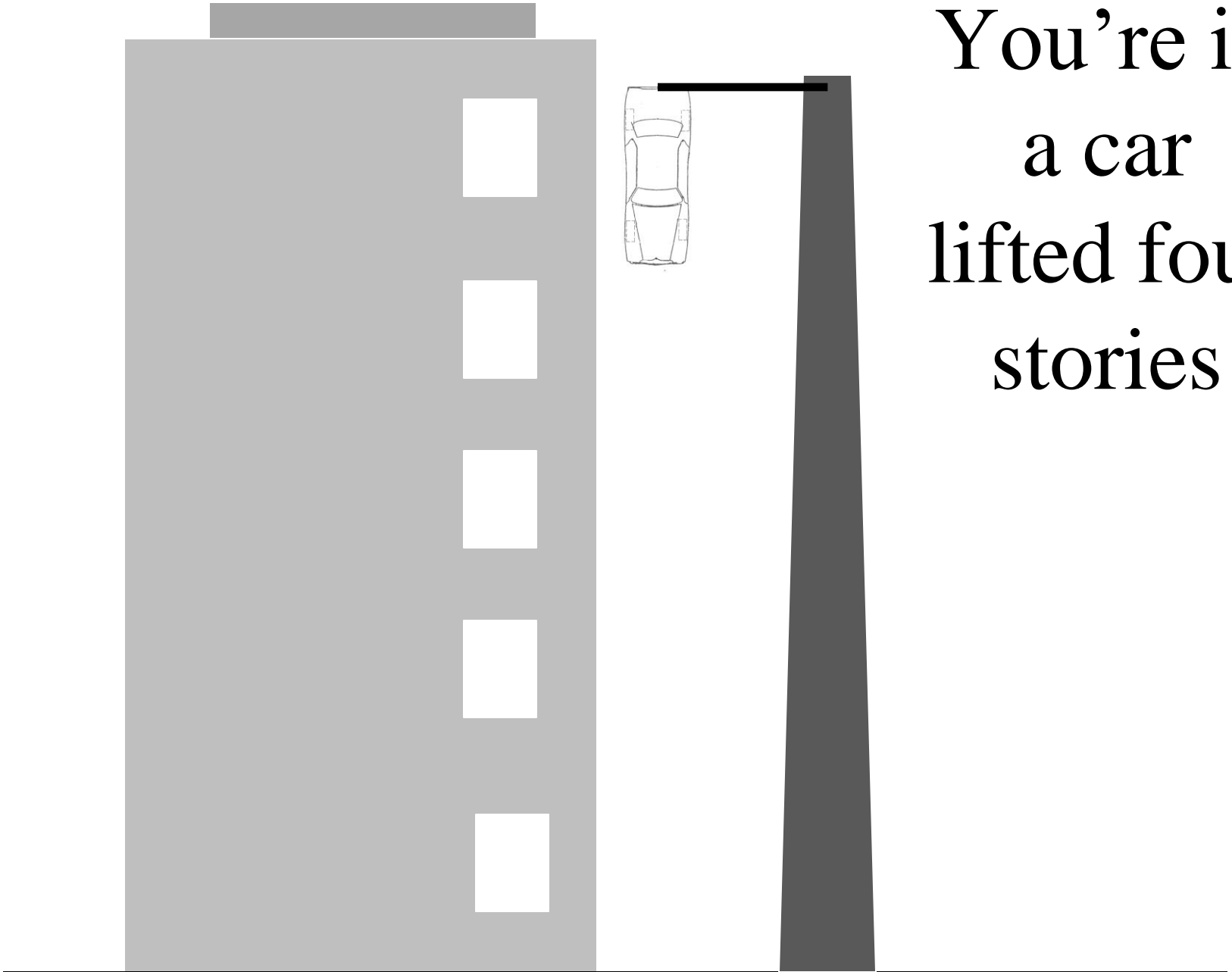
Kids have accidents because
they don't know why
crashes happen.

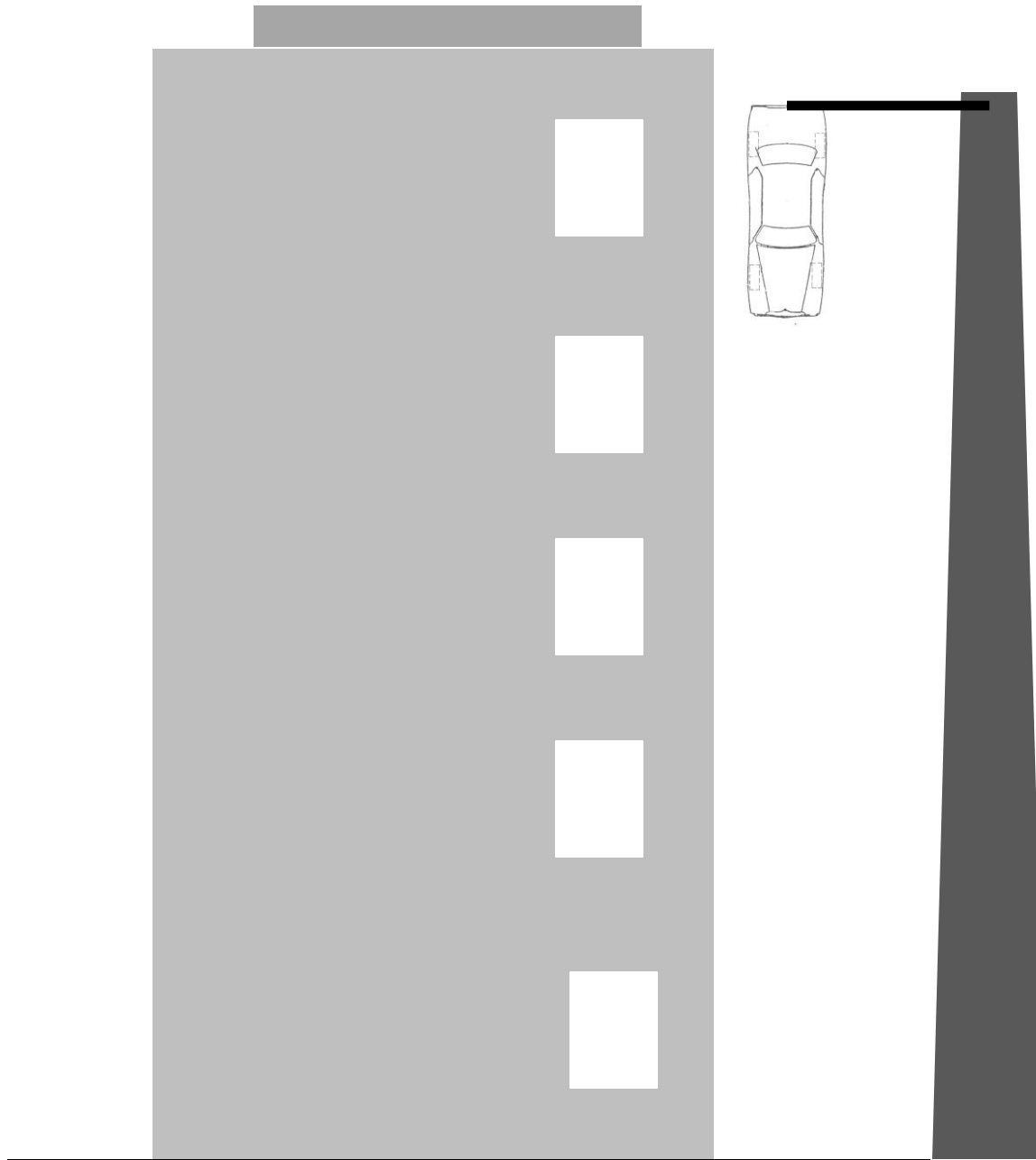
Survey question:

*You really can't get hurt badly if
your car is only going 35 mph?*

AGREE	76%
DISAGREE	18%
NO OPINION	6%

You're in
a car
lifted four
stories






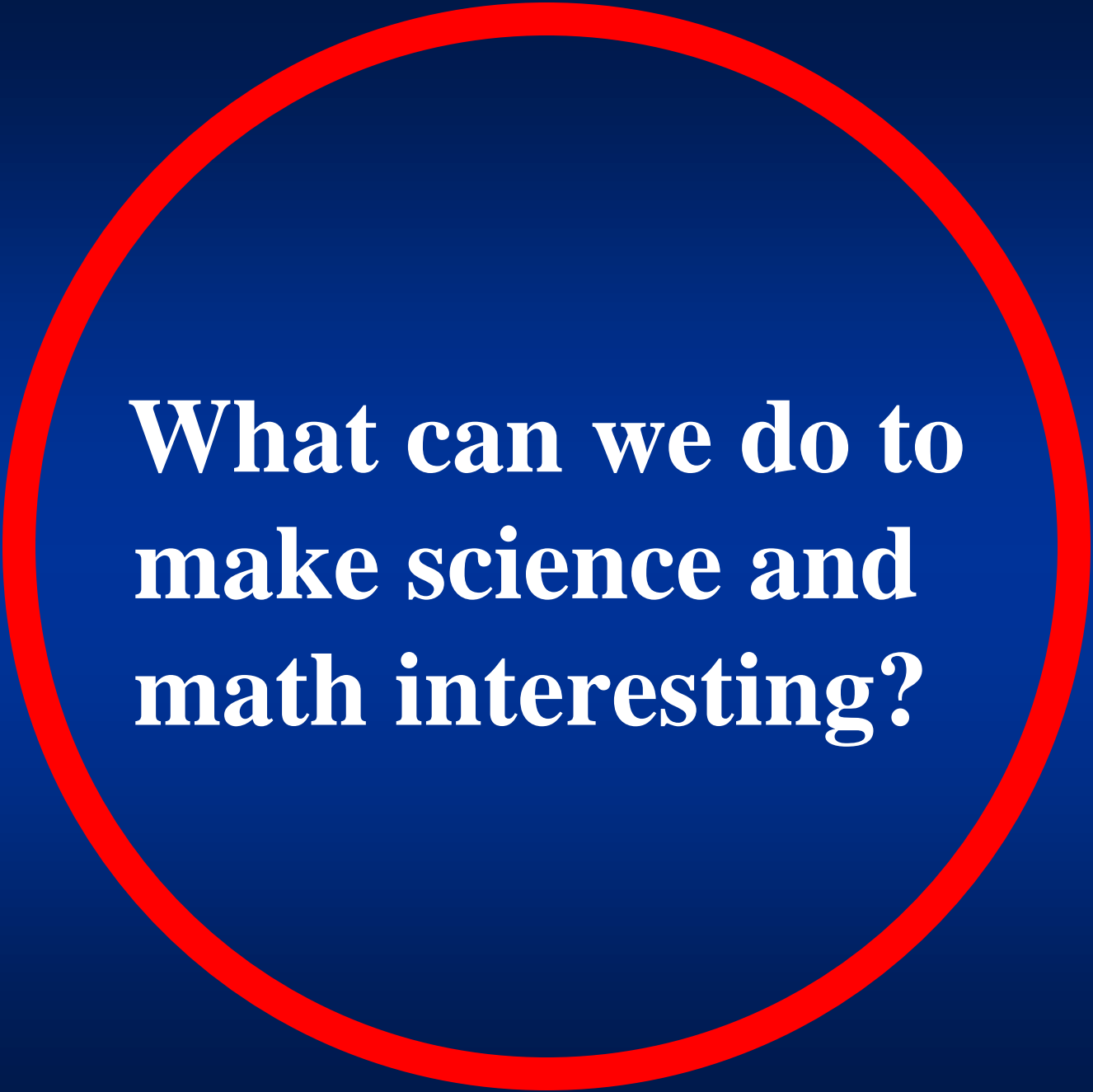
Would
you wear
your seat
belt?



An impact at 35 mph is like being dropped from a four-story building.



**What can we do
to help new
drivers be safe ?**



**What can we do to
make science and
math interesting?**



Science and Math
resources for grades 8 -12

CRASH! addresses two problems:

- Automobile crashes are the leading cause of death for teenagers (70 % +)
- Many kids are turned off to science and math by the time they are high school seniors



is not a structured program
(like D.A.R.E.)

does not require a specific
amount of time

is a collection of
teaching resources...



that make it easier (and fun) to learn

physics

health studies

science

biology

math

driver's ed



WHAT DO TEACHERS SAY

“Through these interesting, hands-on activities, students learn science principles without even realizing it !”

Arthur Gage, physics teacher
web site video

“*CRASH!* shows kids how science and math relate to real life, and they get excited about learning.”

(Maryanne Butler, web site video)

“Three kids got to sit in the police car and the officer did an emergency stop with the tires screeching. They were going crazy in the back seat. They couldn’t wait to take the measurements.”

Officer Robert Wilde
North Providence, R.I. PD

Each Teacher's
Manual has a
table of contents.

Science, p.4

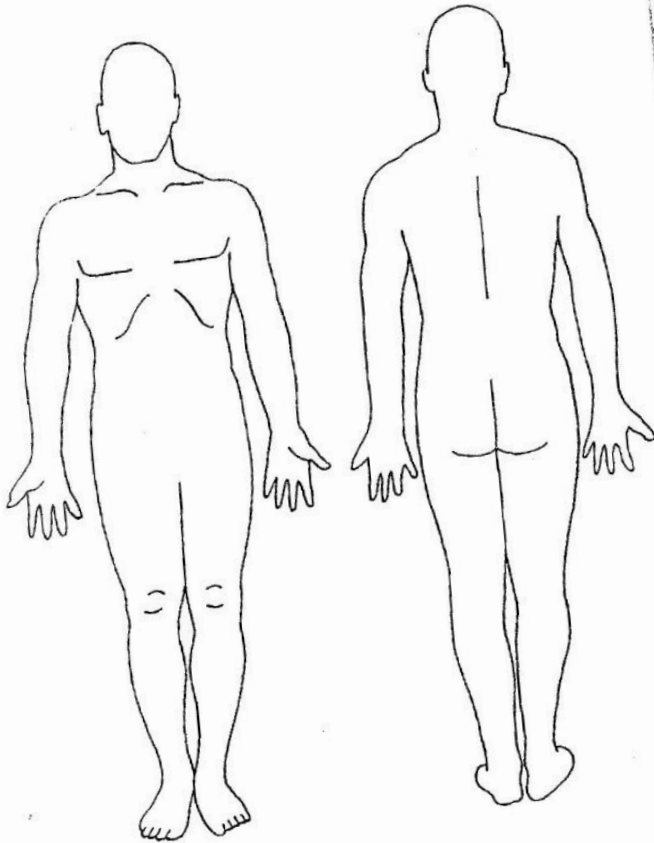
Page	CRASH ACTIVITIES-SCIENCE	NEWTON'S LAWS	PROPERTIES OF MATERIALS	ENERGY	CSI	PERCEPTION - REACTION TIME	LINEAR MOTION	STATISTICS
5	Examining Lamps for ON/OFF at Impact	●	●					
11	Investigating a Motor Vehicle Homicide Case				●			
14	Was it Safe to Cross?					●	●	●
17	Driver Perception-reaction Time					●	●	
24	Distractions Can Be Deadly!					●	●	
27	Skateboards and Cars Don't Mix					●	●	
30	People Can't Fly!			●				
32	Vehicle Kinematics	●						
38	Does Speeding Really Save Time?					●		

Samples of the CRASH! activities



NAME _____ DATE _____

INJURY "MAPPING" WORKSHEET

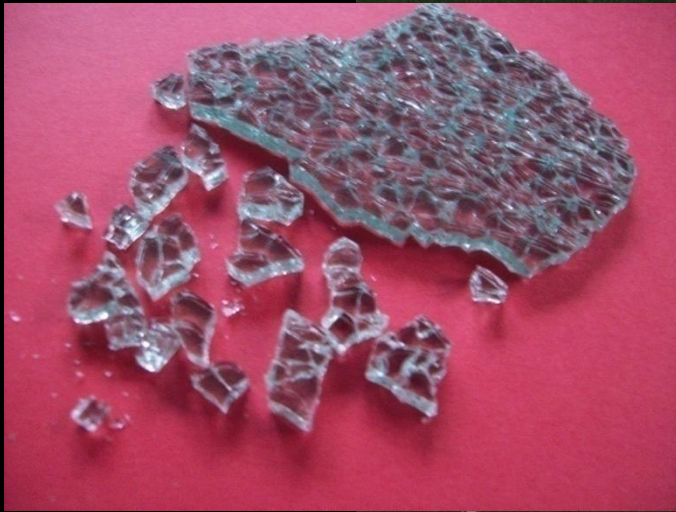


A
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A
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Y

biology activity:

Using an autopsy
report to determine
who was driving

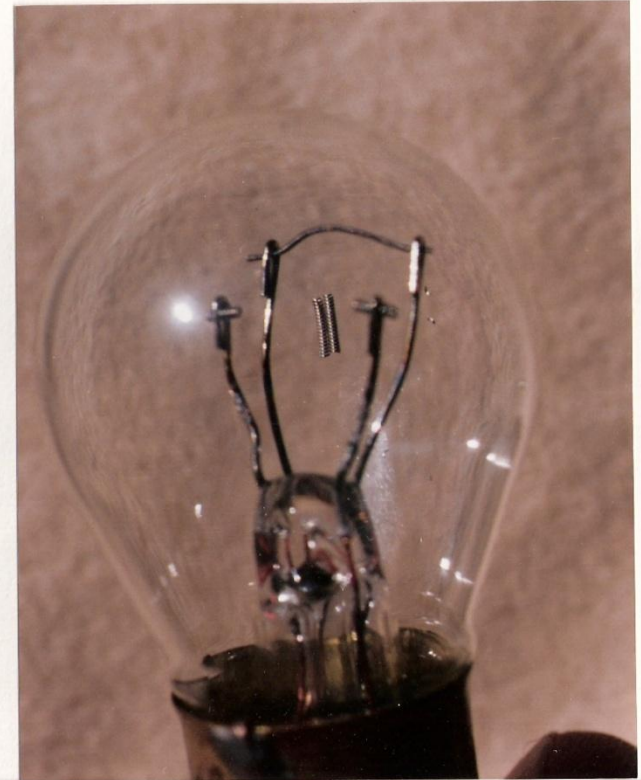
Biology, p. 5
autopsy report p. 7



science activity:

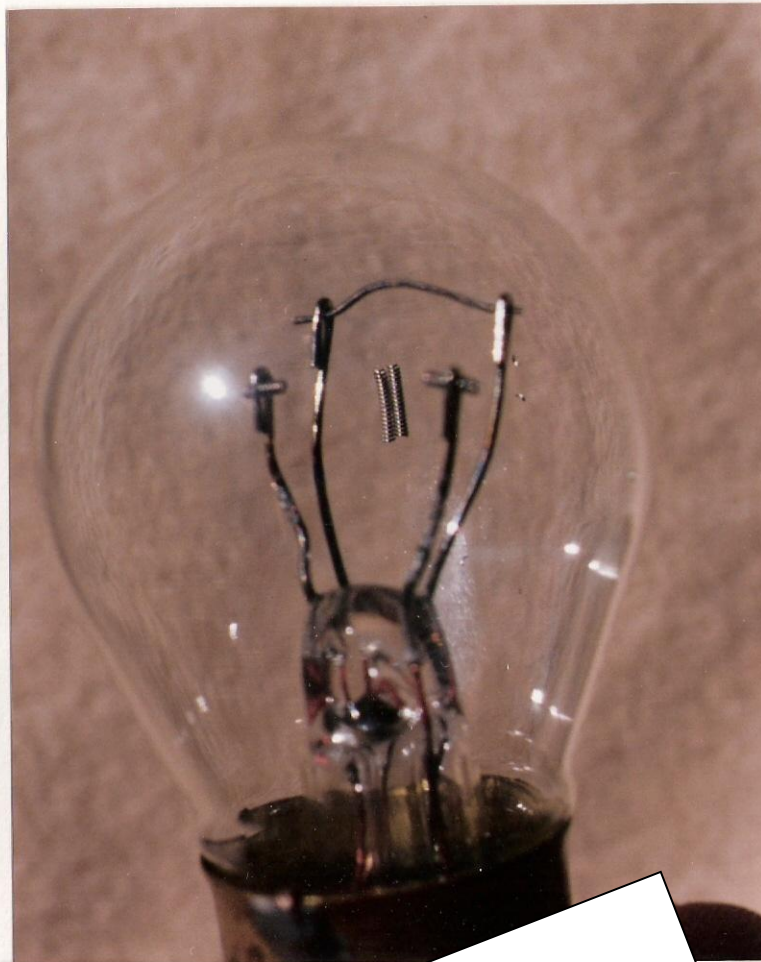
Examining lamps for
ON/OFF at impact

Science, p.5
forensic photo's



Evidence #7218A5

Case: State v. William Dufree
Location: Broadway/49th
Date: 8/2/99 Time: 1945
Secured by: Tpr. Barnes



Evidence #

OFF

C. ... three
Loc. ... roadway/49th
Date ... 99 Time: 1945
Secured by: Tpr. Barnes

biology and math activity:

Using the **BACSim**
reaction time simulator software

BACSim

Enter personal information (weight, sex)

Select a drinking scenario

BACSim calculates resulting BAC

Student performs the on-screen PRT test

actual PRT shows on screen

alcohol-impaired PRT shows on screen

science activity:

Perception-reaction Time

Science, p. 24

GoSTV
THE SCIENCE OF COLLISIONS

NAME _____ DATE _____

USE A SCALE OF 1" = 20 FT TO DRAW THE "REACTION ZONE" IN FRONT OF EACH VEHICLE.
THE SPEED OF THE VEHICLE IS 30 MPH.

reaction zone = 1.47 (s) (t) S = speed 1 = perception/reaction time

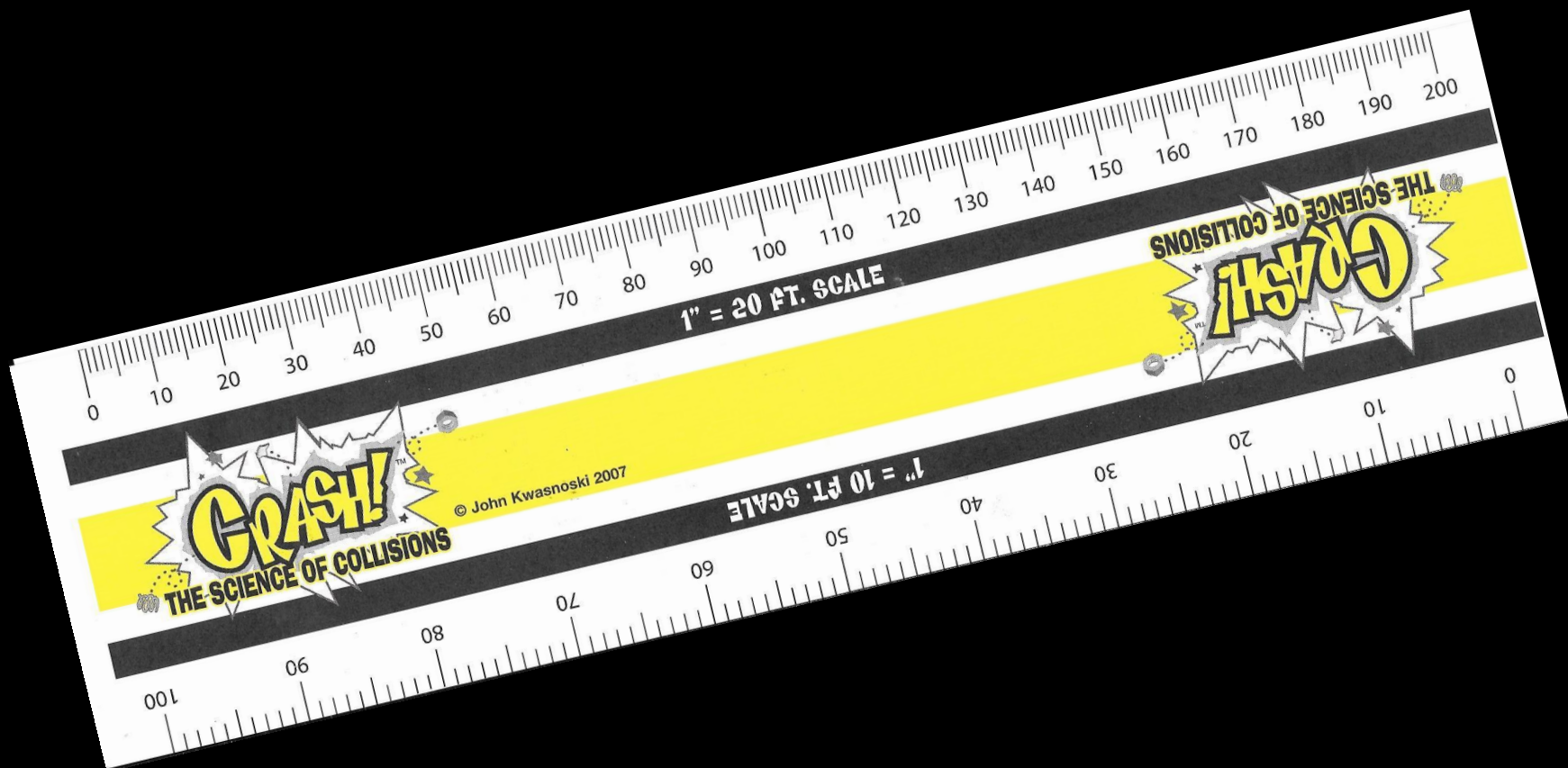
REACTION TIME

"normal" PRT = 1.5 sec

"alerted" PRT = .75 sec

"DWI" PRT = 3.5 sec

24





NAME _____ DATE _____

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"normal"
PRT = 1.5 sec



"alerted"
PRT = .75 sec



"DWI"
PRT = 3.5 sec



REACTION
TIME

outside demo

- CA v Daniels at 2.49.avi

$\approx 7:09:10$
(2007)

biology activity: The cough
medicine defense

Biology, p. 46

Driver claims alcohol in Sudafed
cough syrup caused a high BAC

defendant male weighed 160 lbs

Sudafed facts:

2.4% ETOH

1 bottle = 4.0 oz



Widmark formula:

$$\text{BAC} = \frac{\text{ounces (\% ETOH)}}{\text{body weight (13.1)}}$$

Widmark factor for men



Widmark formula:

$$0.242 = \frac{\text{ounces (2.4)}}{160 (13.1)}$$

Widmark formula:

$$0.242 = \frac{\text{ounces (2.4)}}{160 (13.1)}$$

$$\text{ounces} = 211 \text{ oz}$$

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$$0.242 = \frac{\text{ounces (2.4)}}{160 (13.1)}$$

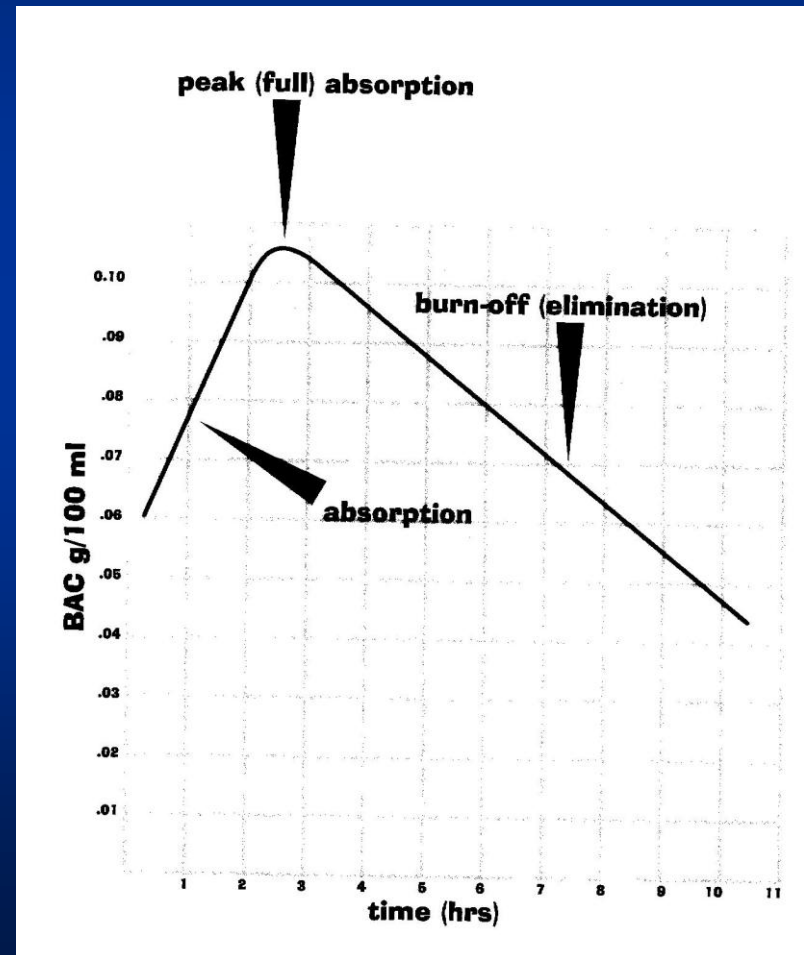
$$\text{ounces} = 211 \text{ oz}$$

$$211 \div 4 \text{ oz/bottle} = 52 \text{ bottles}$$

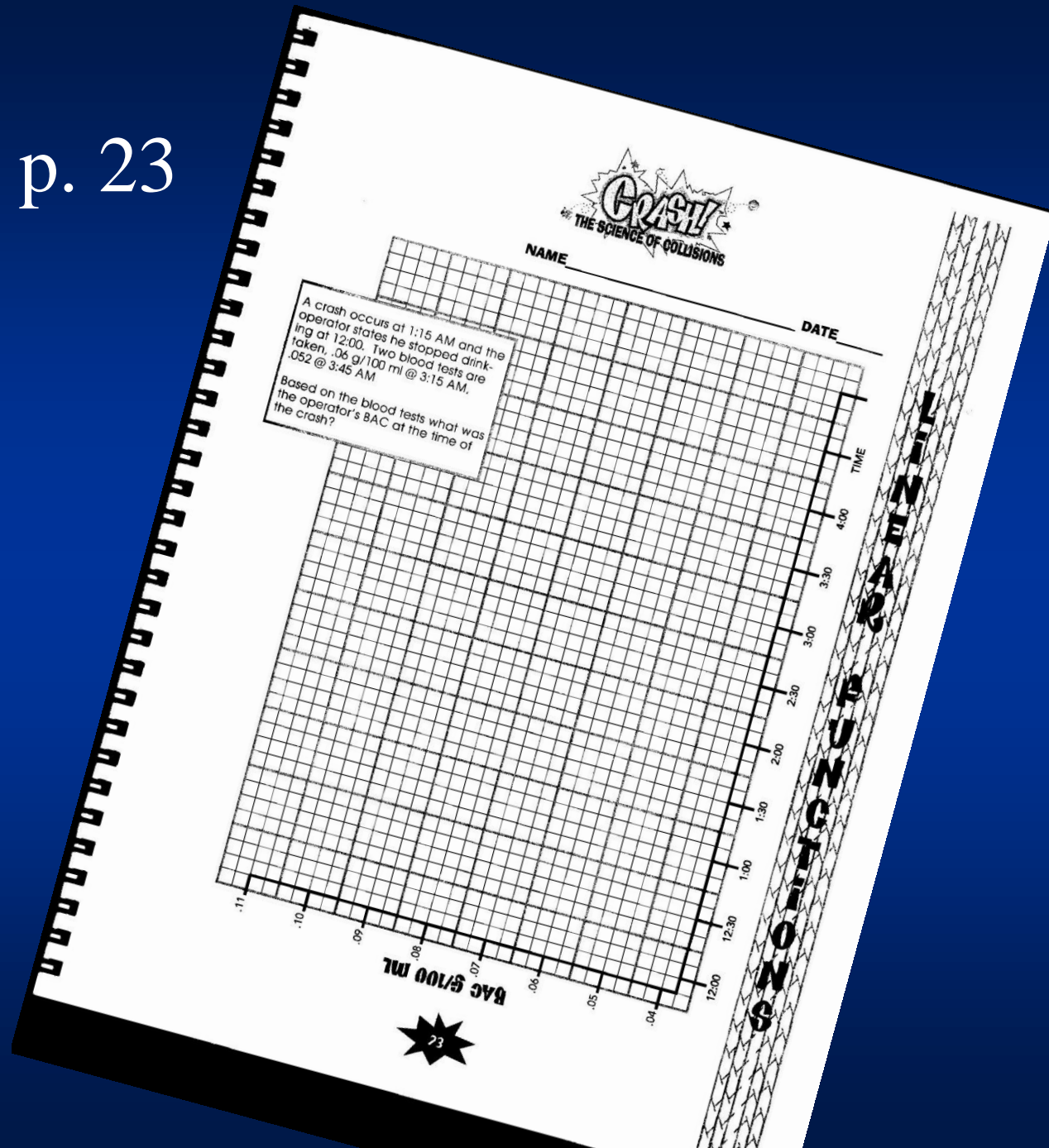
math activity:

Alcohol and driver performance,
BAC at time of crash

Math, p. 20



Math, p. 23

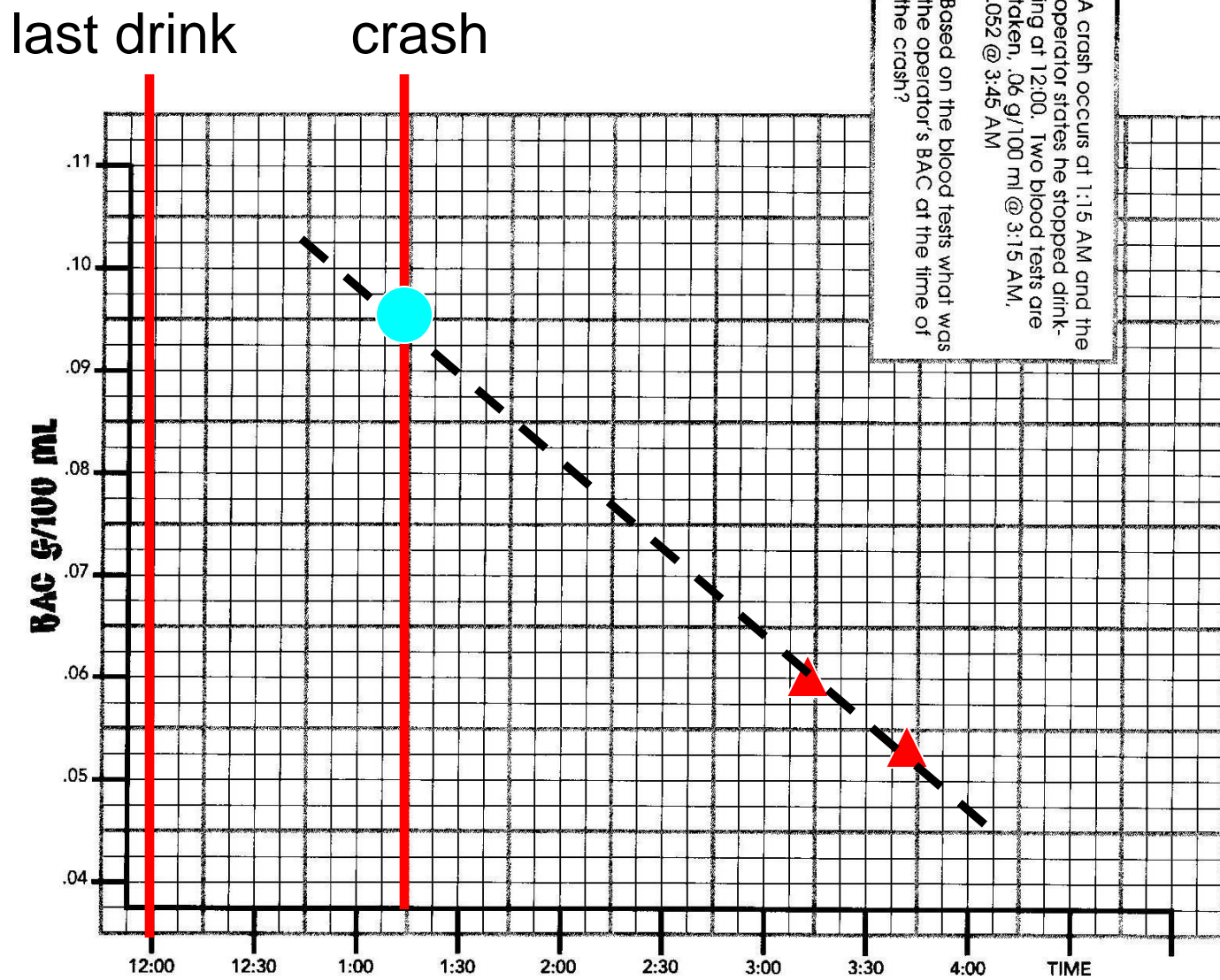


THE SCIENCE OF COLLISIONS

GO!

NAME_

DATE:



A crash occurs at 1:15 AM and the operator states he stopped drinking at 12:00. Two blood tests are taken, .06 g/100 ml @ 3:15 AM, .052 @ 3:45 AM

Based on the blood tests what was the operator's BAC at the time of the crash?

last drink

crash

BAC 5/100 mL

.11

10

.09

08

5

12:00

12:30

1:00

1:30

2:00

2:30

3:00

3:30

4:00

TIME

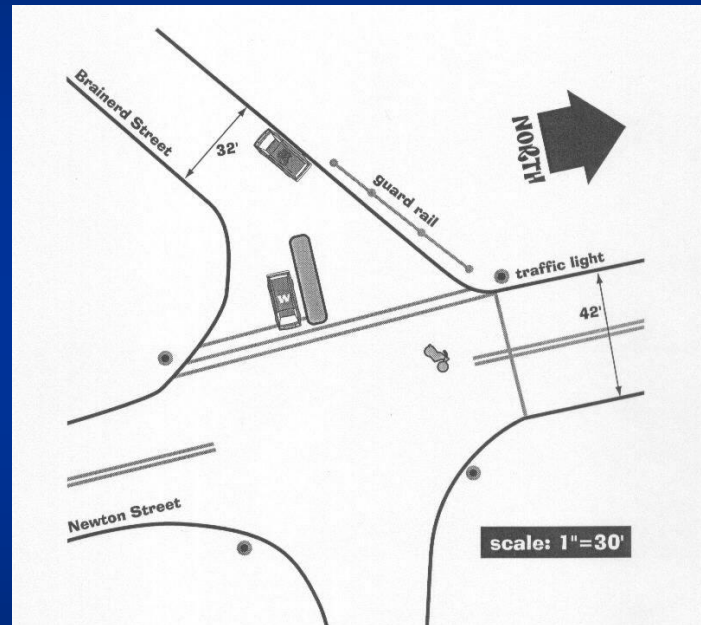
1

1

physics activity:

Newton's Laws in Court

Physics, p. 63

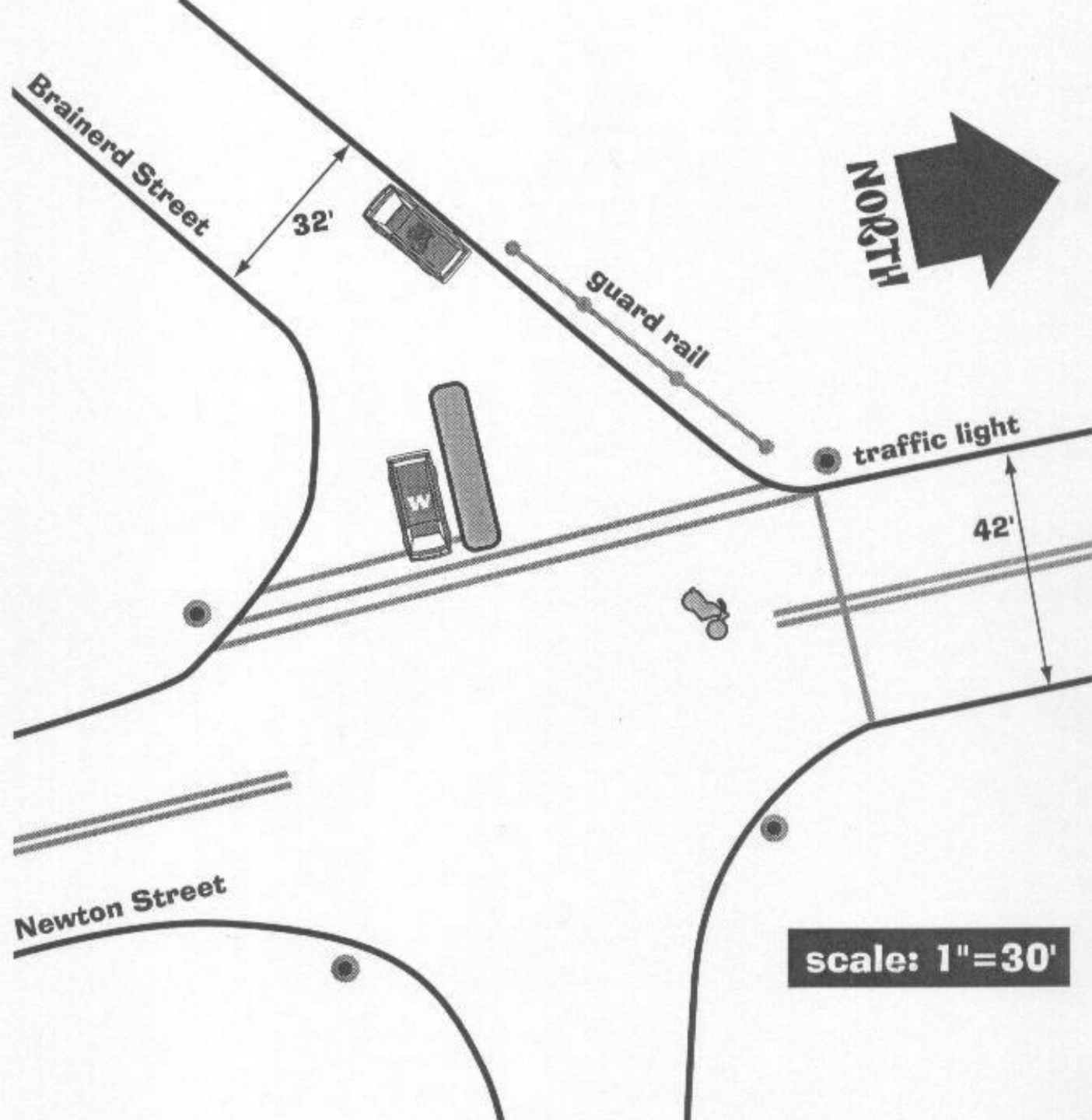


Who was at fault?

Newton's 1st Law:

An object at rest tends to stay at rest, and an object in motion tends to maintain its motion.

- NIGHT
- LIGHT RAIN
- NB PICK-UP TRUCK MAKES LEFT TURN ON GREEN LIGHT
- MOTORCYCLE COLLIDES WITH TRUCK
- MOTORCYCLE FALLS ON LEFT SIDE WITHIN INTERSECTION
- TRUCK PULLS OVER AND STOPS
- EYE WITNESSES IN VEHICLE AT TRAFFIC ISLAND
- MC OPERATOR PAID BAR TAB NINE MINUTES PRIOR TO CRASH



Assignment:

Investigate to determine
who caused the crash.

Evidence ?

Photographs ?

Operator questions ?

Witness questions ?

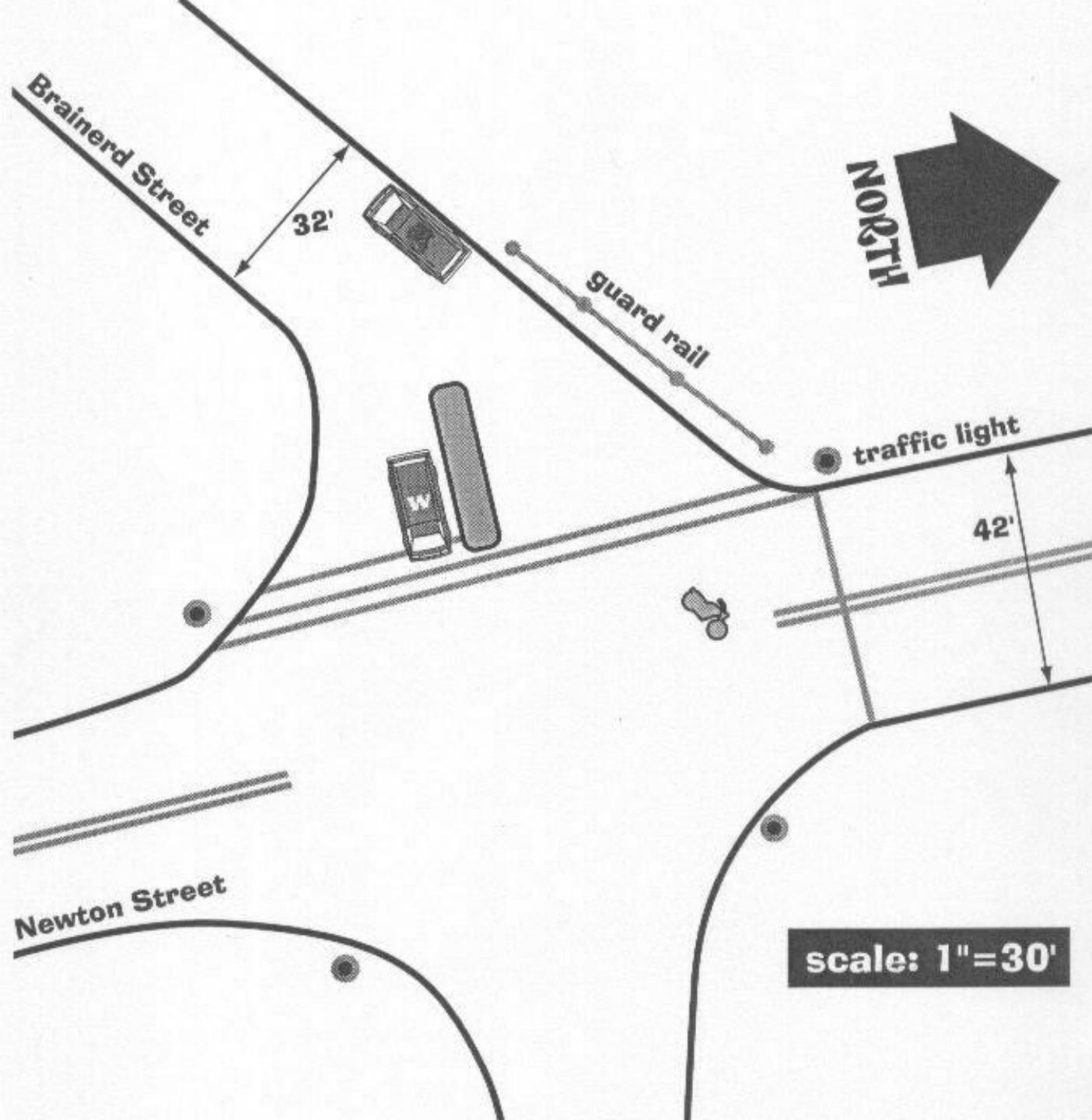
Police report:

“Vehicle #1 was making a left turn from Newton onto Brainerd, Vehicle #2 was going straight when they came in contact with each other.”

“Citation to operator of MV#1 for improper left turn.”









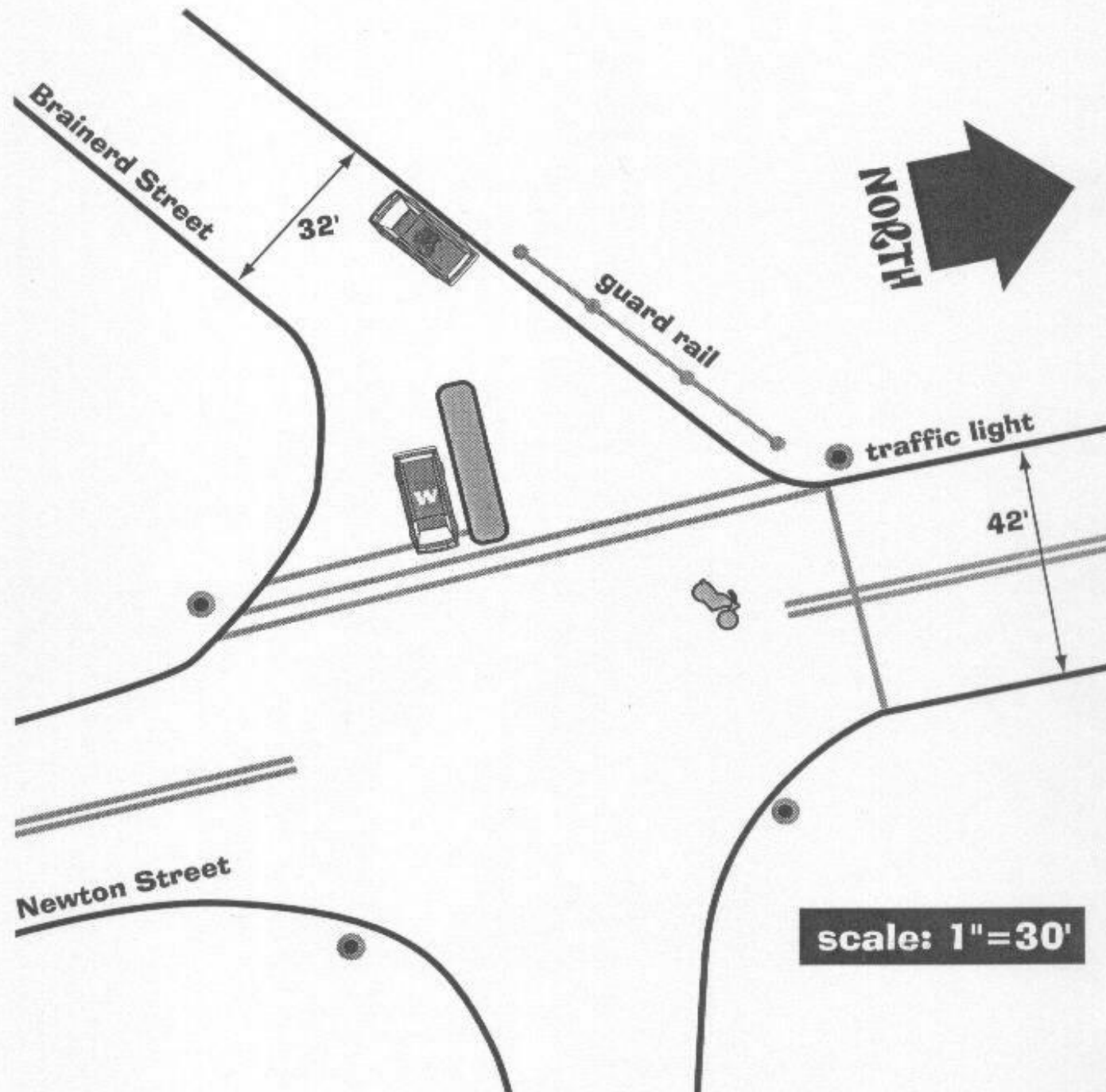
MASSACHUSETTS
574-348
COMMERCIAL

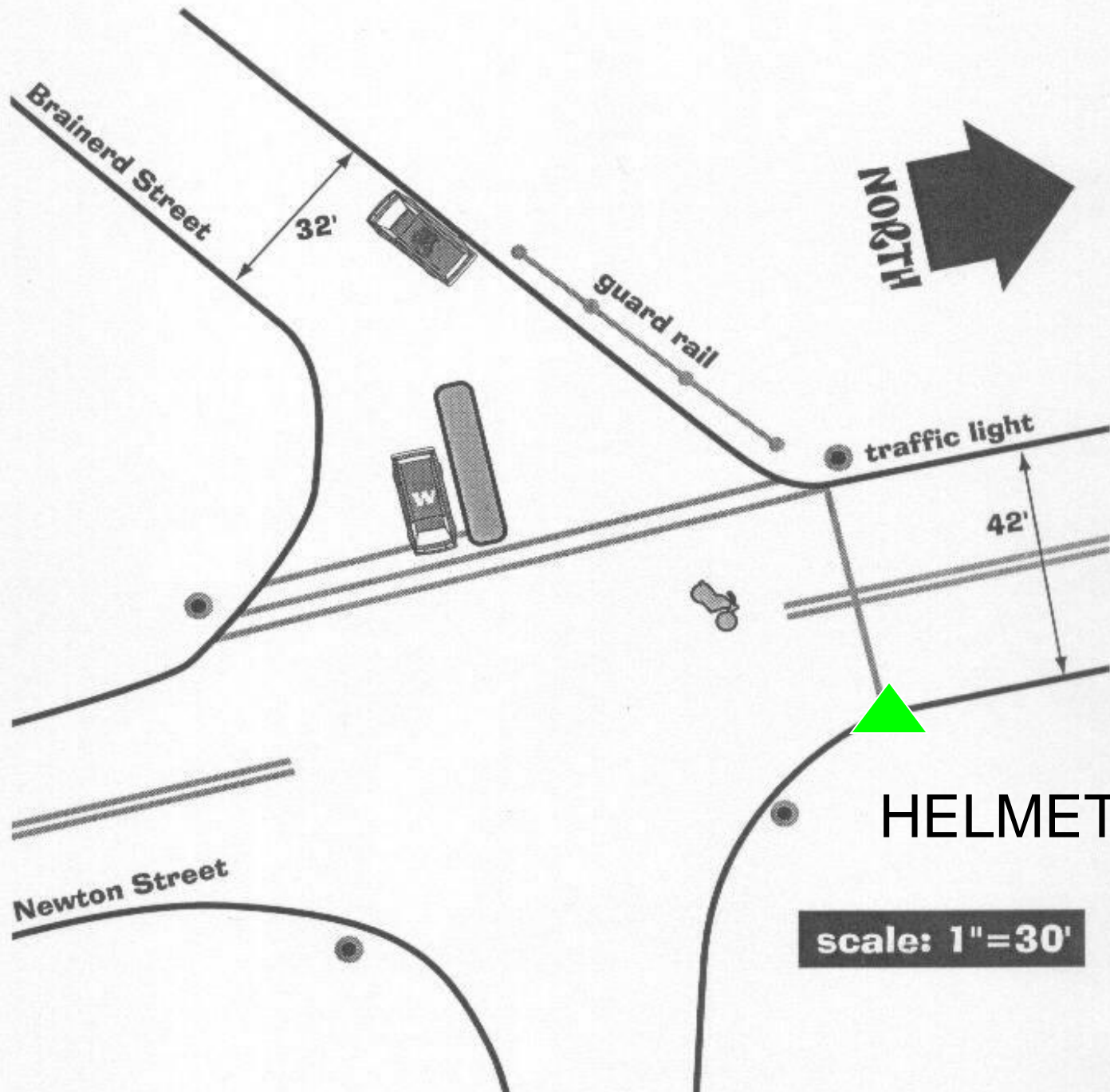


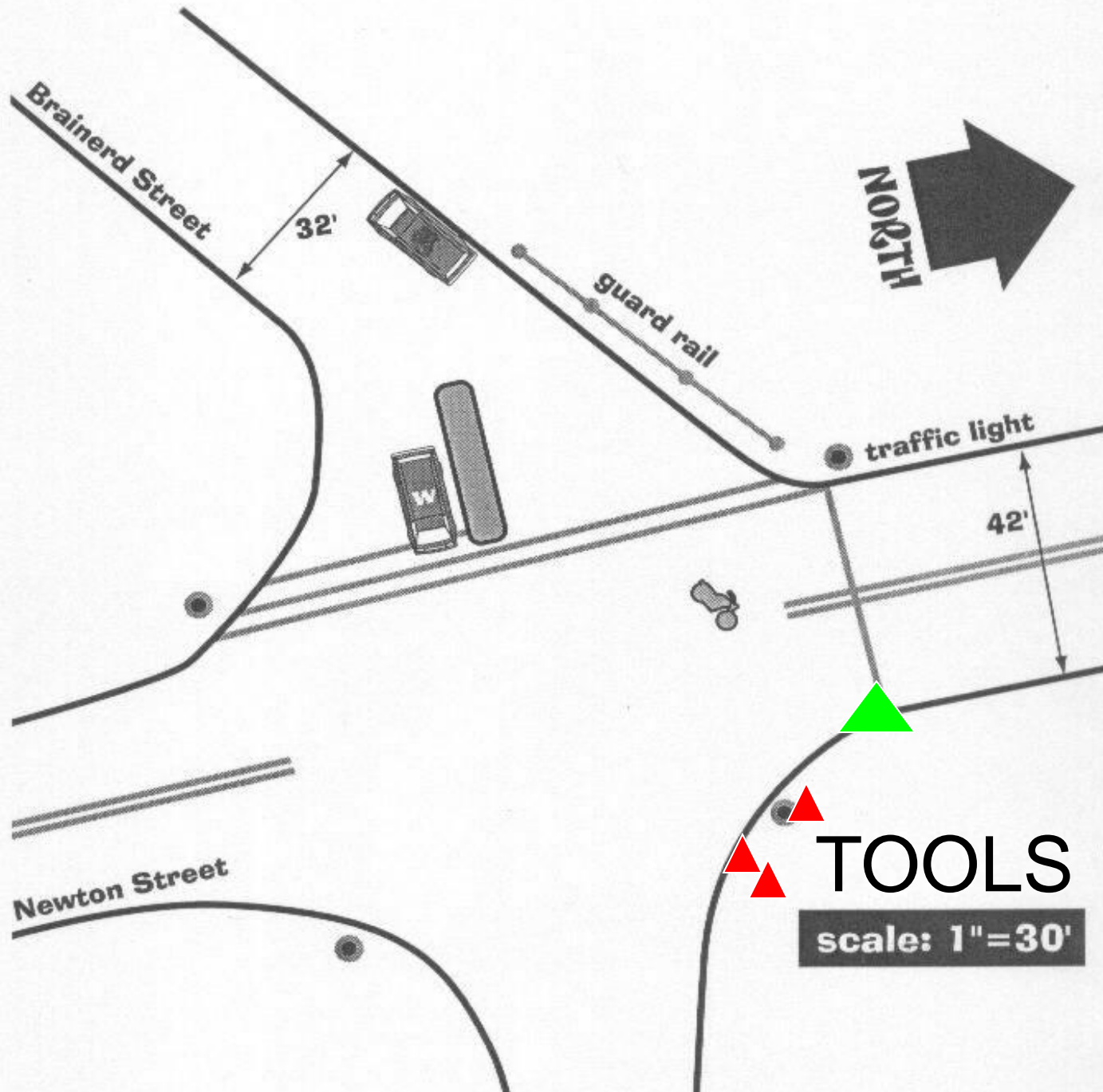


ADDITIONAL INVESTIGATION

- INFORMATION FROM THE BAR
- INFORMATION FROM MEDICAL,
AMBULANCE TEAM, EMS, ETC.

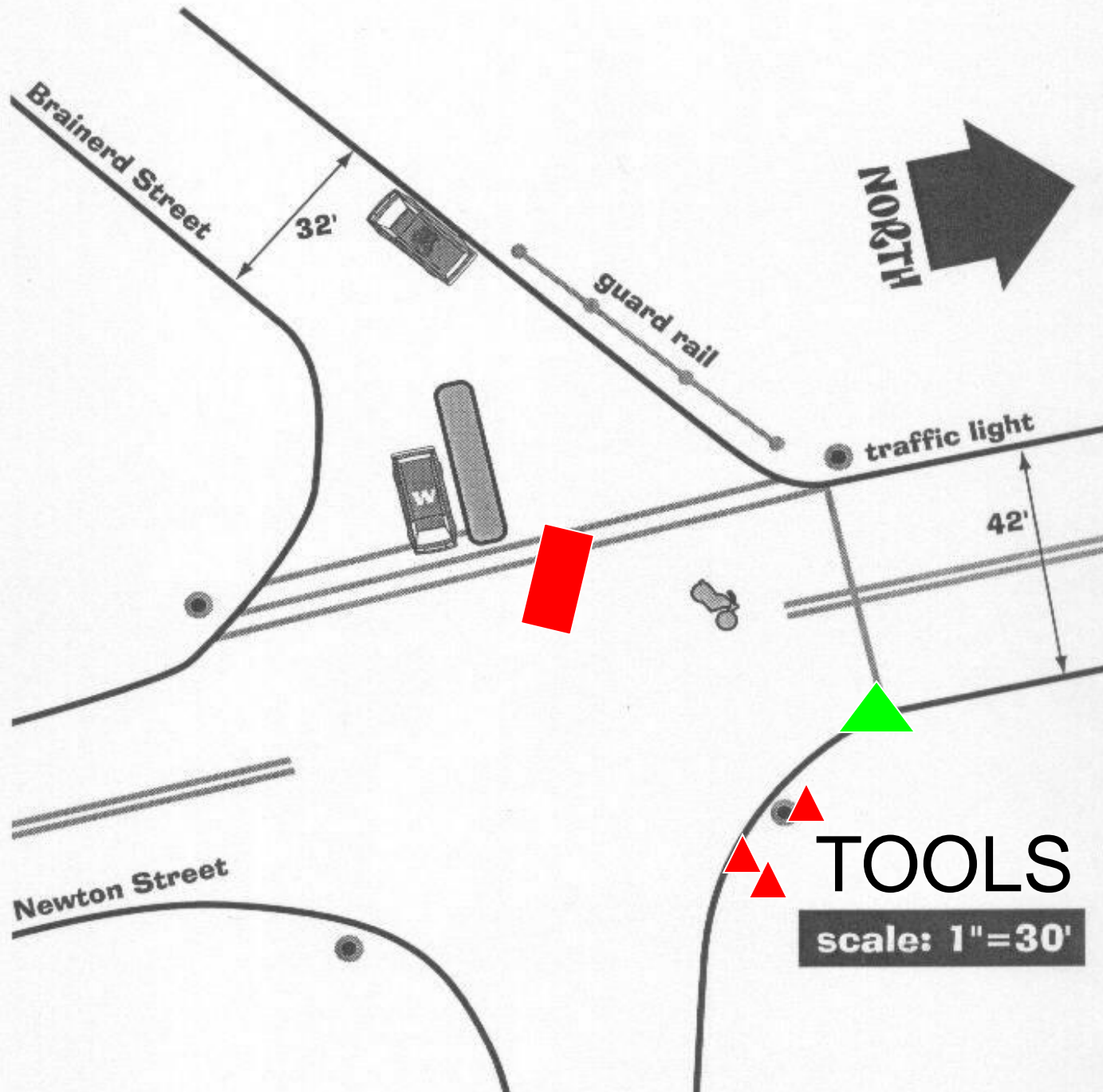




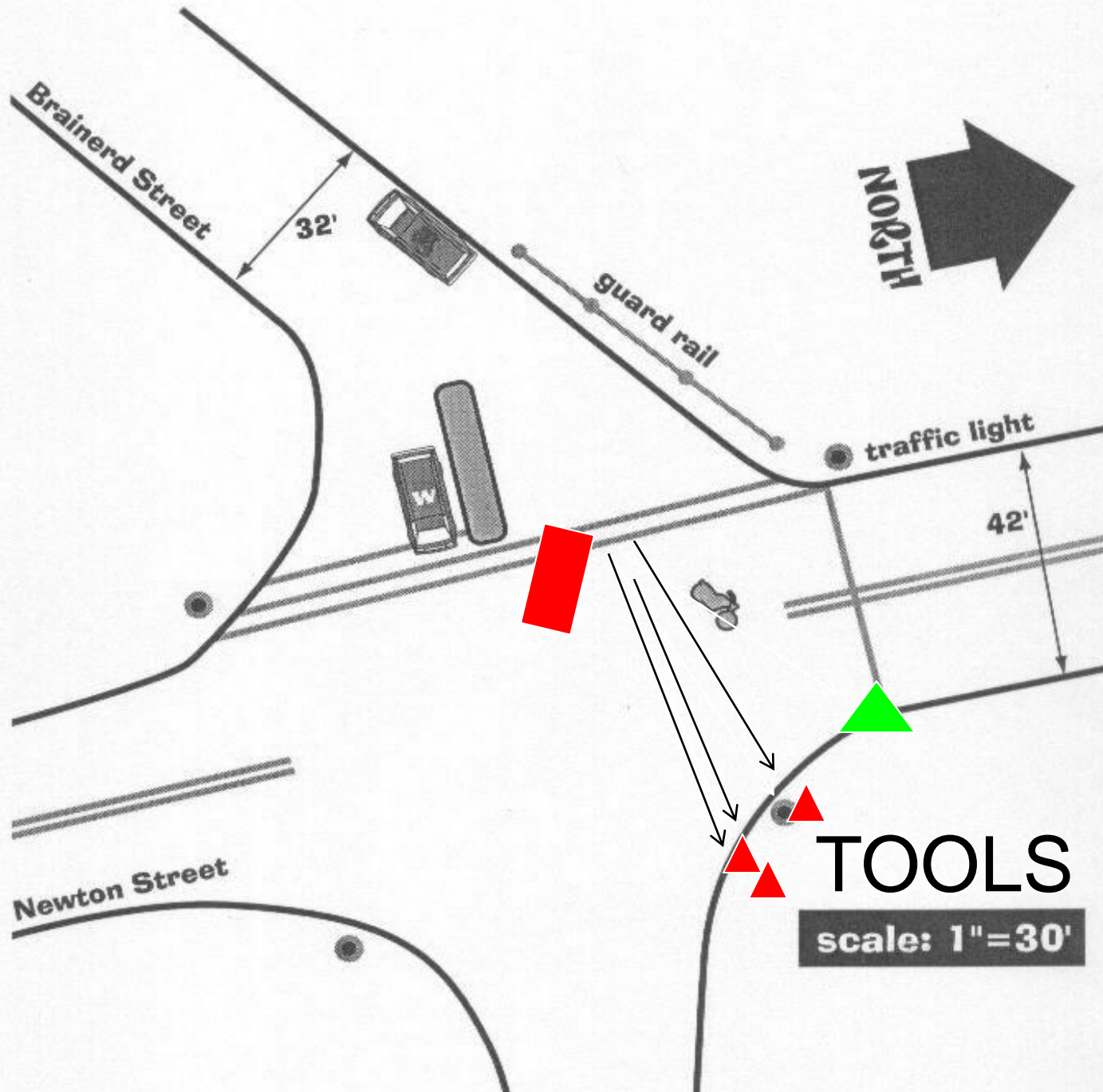


TOOLS

scale: 1"=30'



TOOLS
scale: 1"=30'



TOOLS
scale: 1"=30'



Take Home Activities

© 2013 Legal Sciences

Sheriff's message

Take-home activity:

You Can't Afford a DWI

Students and parents are asked
to tabulate the costs of a DWI



YOU CAN'T AFFORD A DWI!

CONCEPTS: YOUR STATE'S DWI LAW
CONSEQUENCES OF DWI

MATERIALS: LIBRARY
INTERNET

BACKGROUND:

If you drink and drive you can be cited for DWI, fined after a court appearance, have your license suspended, be required to attend remedial DWI driving school, etc., etc., etc. The fine may not seem like a large amount of money, but when you total all the costs that result from driving while impaired, it just doesn't pay.

STUDENT ACTIVITIES:

1. Have students make a list of all the consequences of being stopped and convicted of DWI, and then consolidate all the lists. This usually makes for extended discussion and student input, and may require outside research of the costs of DWI school, court costs, lawyer's fees, etc.
2. Have each student apply the list to him/herself and make a list of the specific costs if he/she were convicted of DWI. Don't forget any lost wages for time spent in DWI school or time lost when the driving license is suspended.
3. Have students make a poster showing the cost of a DWI, or even better, submit an article to a local newspaper showing the cost. TV and radio stations might also be interested in your local research, as would S.A.D.D. or M.A.D.D. groups.

Sheriff's message

Cost of a DWI - Sample

DWI fine

Court cost

Retrieve car from police impound

Towing charge

Enrollment in DWI school

Loss of wages - court appearance

Loss of wages to attend driving school

Attorney fee

Bail expense

Insurance surcharge (3 yrs)

Transportation to/from work during license
suspension (6 months)

Reinstatement of license

\$ 200.00

125.00

50.00

75.00

150.00

100.00

400.00

1000.00

200.00

1500.00

600.00

50.00

Total

\$ 4450.00

There are 12 alcohol-impaired
driving activities...

**STOP DWI funding can be
used to purchase CRASH!**

3 DVD's

are included in the CRASH! Toolbox

and

3 CD's

are included in the CRASH! Toolbox

the Resources CD

has all documents, forensic photos,
videos, and computer softwares

Remember my hypothesis:

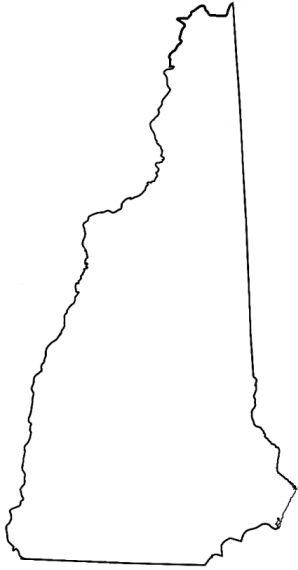
Kids have accidents
because they don't know
why crashes happen.



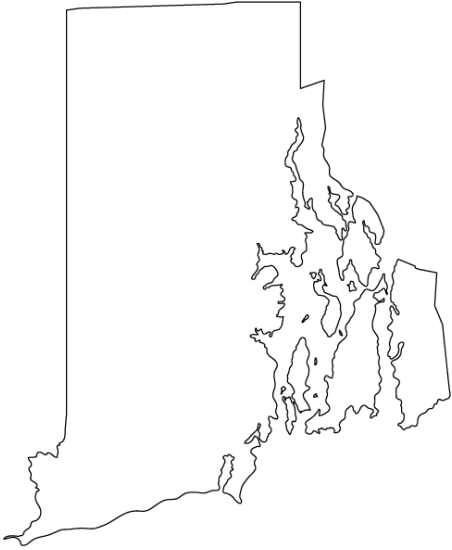
tells them why!

HOW DO WE
KNOW ***CRASH!***
WORKS?





Funded by GOHS in NH
and MetLife in RI



The next year teen deaths
went

down by 25%

The message for teachers:

CRASH! *motivates* kids
using real applications
of math and science



- supports NY state learning guidelines and mandated testing
- is used within existing lessons (no new topics are introduced)
- no teacher training is needed

www.legalsciences.com/crash!/

CRASH! overview video (2 min.)

*[www.legalsciences.com/crash!/
/](http://www.legalsciences.com/crash!/)*

CRASH! overview video (2 min.)

What they say video (2 min.)

(students and teachers)

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CRASH! overview video (2 min.)

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(students and teachers)

Complete list of activities

*[www.legalsciences.com/crash!/
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Complete list of activities

FAQ's

*[www.legalsciences.com/crash!/
/](http://www.legalsciences.com/crash!/)*

CRASH! overview video (2 min.)

What they say video (2 min.)

(students and teachers)

Complete list of activities

FAQ's

Feedback about CRASH!

When a young driver is
killed, the whole
community grieves...



Chief Reggie Redfern, 1999 President
New England Assoc. of Chiefs of Police

“Now we can do something
before it happens.”

Questions?