

# PRECISION EQUIPMENT

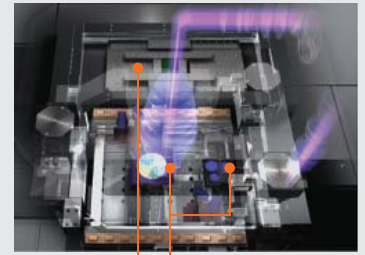


## Introduction of tandem stage realizes practical application of immersion scanner

The newly developed tandem stage consists of an exposure stage and a calibration stage. As the name suggests, the exposure stage occurs when the wafer is placed on the stage for exposure, while the calibration stage is used to calibrate the tool between each wafer exchange. Previously, the calibration tool was loaded onto the apparatus after the wafer was placed on the stage (wafer stage). Thus, with frequent calibration checks, accuracy increased, but productivity declined.

With Nikon's tandem stage, the calibration stage is moved into position as exposure is completed in a closely overlapping sequence. Next, both stages move simultaneously until the immersion area is positioned above the calibration stage. Following this, only the exposure stage is moved to allow for wafer exchange, while the exposure stage on the replaced wafer closely overlaps the calibration stage, and the circuit pattern is exposed. During this time, purified water is continuously transferred. The calibration stage replaces the wafer and the space between the projection lens and the calibration stage is filled with purified water. With the tandem stage method, purified water is supplied continuously during wafer exchange, so the temperature remains stable and no time is lost.

It has traditionally been thought that immersion would reduce throughput, but the tandem stage dismisses this as myth. Calibration at every wafer exchange ensures optimum accuracy including alignment. The NSR-S609B boasts alignment accuracy far superior to conventional systems at a level of 7nm or better.



Tandem stage  
Reticle stage



## IC and LCD steppers

### Performance Summary

In IC steppers and scanners, Nikon posted significant growth in sales of ArF scanners, while in LCD exposure systems, efforts were made to expand sales of the new FX-71S exposure system to meet demand for larger LCD panels. Segment sales therefore increased 13.5% year-on-year to ¥243,207 million. As a result of initiatives to shorten production lead-times and cut costs through simplified design and production process overhauls, operating income surged 131.6% to ¥26,375 million.

### Aiming to be global leader in ArF immersion scanners

With ArF immersion scanners, the space between the projection lens and the wafer is filled with purified water with a refractive index of 1.44, rather than air, which has a refractive index of 1.0. This enables lenses with NA values above 1.0, which is physically impossible using dry exposure. At present, only immersion scanners support the mass-production of advanced 55 nm and smaller devices. And these immersion scanners will have a significant position in the IC stepper market.

In January 2006, Nikon began shipping the NSR-S609B ArF immersion scanner with a lens with an NA value of 1.07, the first in the world to break through the NA 1.0 barrier. Target unit sales volume has already been met. In the fourth quarter of 2006 (CY), Nikon plans to ship the NSR-S610C with a lens with an NA value of 1.30, thereby stamping its superiority on the market for immersion scanners.

### Improved alignment accuracy and high throughput realized with tandem stage

The newly developed tandem stage employed in the NSR-S609B consists of an exposure stage and a calibration stage. With this mechanism, water is supplied continuously during wafer exchange, meaning the temperature remains constant and no time is lost. It has traditionally been thought that the introduction of immersion would reduce throughput, but with the tandem stage, Nikon has succeeded in overcoming challenges concerning both alignment accuracy and throughput in immersion systems.

Besides immersion scanners, this tandem stage can also be applied to conventional scanners. Nikon intends to exploit the outstanding advantages of the tandem stage by introducing it into other systems going forward.

## LCD exposure systems manifest Nikon strengths

The size of flat-screen LCD TVs is increasing at a rapid rate. Exposure tools of the 7th and 8th generation variety play an important role in the mass-production of LCD panels of the 40-inch class and above. And the adoption of Nikon's multi-lens projection optical system in large-size exposure systems enables the effective exposure of multiple panels, making it ideal for this mass-production. Sales of both the FX-71S for 7th generation plate sizes and of the FX-81S for 8th generation plate sizes have been strong, and Nikon's share in the market for large LCD exposure systems has risen dramatically. Consequently, Nikon is confident that it has secured lasting product competitiveness in the LCD exposure system market, including for small- and medium-size panels.

## EUVL – next-generation technology

Nikon sees EUVL (Extreme Ultraviolet Lithography) as the most promising next-generation technology beyond immersion. Plans are to start shipments of its first system incorporating EUVL technology in the first half of 2007 (CY), so development is currently in full swing. EUVL works at a wavelength of 13.5 nm, 14 times shorter than that of an ArF excimer laser, which means it can provide IC makers with the support required for device shrinkage.

## Key objectives of the medium term management plan

### 1. In IC steppers and scanners:

- a) Nikon aims to gain top market share in ArF systems, including cutting-edge immersion lithography products. Nikon believes that maintaining a dominant position in state-of-the-art equipments will have positive spillover effects on its entire IC stepper and scanner business, which also includes KrF and i-line steppers and scanners.
- b) Nikon intends to increase essential R&D investment and capital investment to develop next-generation steppers and scanners and boost productivity. The ultimate goal is to develop and release competitive products in a timely manner.
- c) Nikon will create and achieve a clear roadmap for development using the most advanced technology to drive advancement in the IC stepper and scanner market.

### 2. In LCD exposure systems:

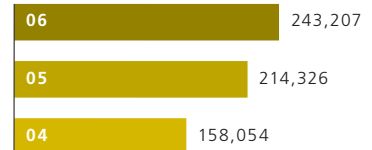
- a) Nikon aims to grab top share in the market for large LCD exposure systems via swift response to the ever-increasing size of LCD panels by leveraging competitive advantages of the multi-lens projection optical system.
- b) Through the development of LCD exposure systems that meet shrinkage demands and of high-speed systems, Nikon seeks to satisfy precise customer needs for equipment for small- and medium-size LCD panels.

3. Nikon will promote simplified design and module standardization, and establish a long-life platform aimed at reducing inventory, costs and production lead-times, including installation. By doing so, Nikon can boost trust from customers as well as secure higher profits.



### NET SALES\*

(millions of yen)

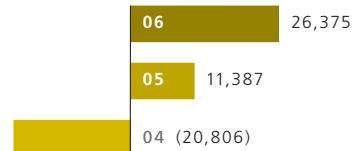


Years ended March 31

\*The above figures include intersegment sales.

### OPERATING INCOME (LOSS)

(millions of yen)



Years ended March 31



#### FX-81S

Exposure system supporting the world's largest 8th generation plate sizes for liquid crystal displays



#### NSR-S609B

ArF immersion scanner with the industry's first hyper NA projection lens of NA 1.07 created using immersion lithography technology



#### NSR-S610C

The next step up from the NSR-S609B, this ArF immersion scanner is equipped with a hyper NA projection lens of NA 1.30 (shipments scheduled to begin in the fourth quarter of CY2006)



# IMAGING PRODUCTS



## Nikon launches D200 digital SLR camera with superior all-round performance

During the year, Nikon released the D200 digital SLR camera boasting outstanding image quality and performance. Apart from employing a 10.2 effective megapixel Nikon DX Format CCD image sensor for exceptional imaging, the D200 has the world's fastest\* power-up in a mere 0.15 seconds and a fast 5 frames per second continuous shooting. Such factors also combine with simple operability, sophisticated design and a diverse array of other advanced features that showcase Nikon's excellent camera technology and the latest in digital technology. Since its launch in December 2005, the camera has received very positive response from a wide range of enthusiasts around the world. It strengthens Nikon's line-up of high-end to mid-range cameras suited to advanced amateurs and professionals. Nikon intends to further bolster its presence in the digital SLR camera market in the future.

*\*As of November 1, 2005, among digital SLR cameras with interchangeable lenses.*



## Applying original technology and advanced functionality in compact digital cameras

Nikon incorporates its compact digital cameras with various technologies and advanced features developed for its digital SLR cameras. One of these technologies is known as Vibration Reduction (VR), which detects camera shake via sensors, thereby driving an optical system built into the lens to provide the necessary compensation and reduce image blur. VR capability realizes a shooting experience akin to shooting at shutter speeds three stops faster to ensure shots stay breathtakingly clear. The next step up in technology for interchangeable lenses for SLR cameras, VR has been built into Nikon's COOLPIX P3 and COOLPIX P4 cameras.



Nikon was also one of the earliest in the industry to realize wireless image transfer technology with wireless connectivity devices targeting professional users of digital SLR cameras. During the period, Nikon introduced the COOLPIX P1 compact digital camera, the first in the world to feature wireless LAN (Wi-Fi) capability. Offering built-in wireless LAN support (IEEE 802.11b/g), the COOLPIX P1 offers superb digital photographic freedom by allowing the wireless transfer of image data and direct printing of desired photos. This feature has been incorporated into COOLPIX P2, COOLPIX P3 and COOLPIX S6 cameras as well.



digital cameras,  
film cameras,  
interchangeable  
camera lenses,  
film scanners

## Performance Summary

Steady growth in digital SLR cameras during the year ended March 2006 ensured a substantial increase in sales of these products. In line with this, sales of interchangeable lenses also expanded significantly. In the compact digital camera market, Nikon launched its "Performance (P) series" equipped with a high-precision Vibration Reduction (VR) system as well as other exceptional functions. This new line complements the "Style (S) series," which boasts a slim, stylish design. The affordable and easy-to-use "Life (L) series" was also introduced during the year as Nikon sought successfully to expand sales of compact digital cameras. Elsewhere, efforts were made to strengthen capacity at production sites and upgrade sales and service bases overseas, and to integrate logistics functions in Japan and Europe. Moreover, procurement innovation led to lower overall costs. As a result, segment sales increased 17.2% year-on-year to ¥416,607 million and operating income climbed 104.1% to ¥34,369 million.

## Bolster competitive edge in the digital SLR camera market

Nikon's digital SLR cameras have proven popular with the market, ranging from the D50 combining simple operation with professional image quality even for beginners, to the D70s with enhanced ease of operation and basic functions and the D200 for professionals and advanced amateurs. Sales of the high-end D2x have also grown, while Nikon released its successor, the D2Xs, in the year ending March 2007. Through the creation of a database listing customer desires and the active provision of minute firmware improvement, Nikon aggressively seeks to improve and enhance its products and services to meet the needs of a wide spec-

trum of digital SLR camera customers from professionals to entry-level users. Going forward, Nikon will continue working to increase its competitive edge in the market.

## Improve profitability of compact digital cameras

Up until recently, the world of compact digital cameras was characterized by competition to develop models with image sensors with higher pixel-counts. Now that most digital cameras incorporate such image sensors, Nikon has the chance to display its true value as a camera maker constantly in pursuit of all-round superior image quality. Going beyond mere functions and features, Nikon's COOLPIX compact digital cameras have been developed with consumer lifestyles and needs in mind, with three categories to choose from: the Performance (P) series, the Style (S) series and the Life (L) series.

Performance: For people wanting high performance, including superior image quality and diverse features

Style: For those with discerning taste for style and design

Life: For users desiring simple operation and affordable price

Categorizing the cameras like this further clarifies the attributes of the product, thereby creating a unique image for each type of COOLPIX model. In particular, the L series has been a hit in the United States and Europe evident in strong sales volume growth, resulting in a considerable improvement in overall profitability of compact digital cameras. Based on the basic concept of the COOLPIX brand to integrate contemporary fine quality with intelligence, Nikon endeavors to create high-value-added products that target specific user groups.

## Expand the software business

In February 2006, Nikon unveiled a new photo finishing software called Capture NX that combines intuitive operation and rich power of expression. This software not only features cutting-edge technologies, but it helps photographers to tap the full potential of Nikon Electronic Format (NEF) image files, enabling photographers to freely edit the images while permanently retaining the original images. Through the mutual exploitation of Nikon's camera technology and the digital imaging technology of a venture company in the United States, the software is not only easy to use but comes with extensive editing functions. Nikon plans to take a multi-faceted approach to market the software using the internet, specialty camera stores and mass merchandisers.

## Status of film cameras

Nikon continues to manufacture and market film cameras - the F6, positioned as the pinnacle of traditional SLR photography, and the FM10, positioned as an entry model - as well as a variety of interchangeable lenses. Although management resources will continue to be concentrated into digital cameras in accord with the times, Nikon will also remain dedicated to fans of silver-halide photography.

## Efforts to develop attractive new digital products

Major innovations in technology are expected to drive evolution in digital cameras so they develop into more extensive systems, making the most of their digital characteristics. In light of this, Nikon intends to create alluring new products that not only consider the joy of taking photos and the lasting memories they bring, but also how digital cameras can be best exploited within digital networks. To this end, efforts will be made to strengthen fundamental technologies aimed at developing products for the future.

## Key objectives of the medium term management plan

1. Nikon seeks to maintain its position as the leading pioneer in the digital SLR camera market. Going forward, in addition to diverse features, Nikon will incorporate other elements that win the hearts of customers and ensure long-lasting loyalty.
2. The timely introduction of new products is imperative to secure profitability in the compact digital camera market. Achieving this requires the swift development of products that directly satisfy customer needs. Besides strengthening marketing capabilities, Nikon will bolster ties between product development, production, advertising and sales to facilitate sharp response to market trends.
3. Nikon will invest heavily in fast-advancing digital technology with the aim of releasing appealing and unique products.



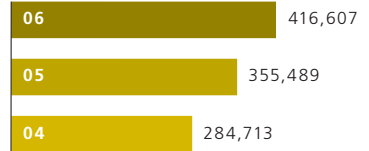
### Camera Grand Prix 2006

The Nikon D200 digital SLR camera, launched in 2005, was awarded the "Camera Grand Prix 2006" award in Japan and was also named "Best D-SLR Expert in Europe 2006" by the Technical Image Press Association (TIPA). The camera was recognized for its completeness with superior operability, high value for money and outstanding performance.





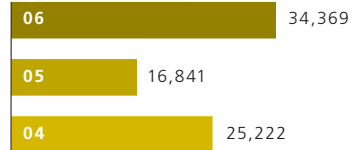
**NET SALES\***  
 (millions of yen)



Years ended March 31

\*The above figures include intersegment sales.

**OPERATING INCOME**  
 (millions of yen)



Years ended March 31



**D2Xs**

A camera that not only maintains the same stellar image quality and high-speed continuous shooting performance of the D2x, this model reflects user desires with fresh new features and operability ideal for professional photographers



**F6**

Carrying on the legacy of the F series, the F6 combines all the revolutionary features that any photography enthusiast, including professionals, could desire in the ultimate film SLR camera



**COOLPIX L3**

5.1 effective megapixels, a wide variety of functions with simple operation and a highly sophisticated design let anyone take better pictures with ease



# INSTRUMENTS



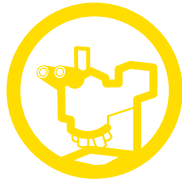
## Launched Automatic Macro Inspection System AMI-3300 for 300mm wafers featuring the world's first 55 nm process

Nikon's AMI series of automatic macro inspection systems ensure high-speed detection of pattern profile variations on the entire surface of the wafer by way of the company's original optical image processing technology. This information is then fed back into the process, thereby allowing more efficient process management. Not only do these systems replace visual macro inspection with automated macro inspection, they also offer improved macro inspection accuracy as well as greater inspection quantization, making them indispensable in semiconductor mass-production process lines. Model AMI-3300 is configured with the newly developed PER (Pattern Edge Roughness) optical system, enabling inspection of pattern profile variations at a line-width of 55 nm, which is a world-first. Besides exceptional detection sensitivity, it allows high-speed, full-surface inspection of 300mm wafers at the remarkable throughput of over 150 wafers per hour.



## Newly-developed BioStation series for the observation and cultivation of live cells

Leveraging its long-standing capabilities in microscopic technology, Nikon has developed the BioStation CT (Cell Tracking) and BioStation IM (cell IMaging) cell culture observation systems to meet needs in the growing market for live cell observation. The BioStation CT enables the stable and safe cultivation of cells and facilitates quality control. The BioStation IM (shown at left), which provides video images of cell activities, is suitable for time-lapse imaging of cultured cells. Nikon seeks to provide new solutions to all users in the field of cell observation.



biological microscopes,  
industrial microscopes,  
measuring instruments,  
inspection equipment

## Performance Summary

Sales in the bioscience business grew on the back of strong sales particularly of microscopes incorporating Nikon's distinctive features, including the new spectral imaging confocal microscope C1Si and the Perfect Focus System. Sales in the industrial instruments business exceeded levels posted in the prior year. Nikon expanded sales of the NEXIV series of CNC video measuring systems with the introduction of the Confocal NEXIV VMR-K3040ZC, and also enjoyed brisk sales of AMI series of automatic macro inspection systems, which contributes greatly to the miniaturization of IC patterns. Overall segment sales expanded 5.2% year-on-year to ¥54,875 million, while operating income surged 44.6% to ¥4,085 million on account of successful cost-cutting measures.

## Positive effects of organizational reforms

In June 2005, Nikon conducted major organizational reforms in the Instruments Company. The new system eliminates previous functional divisions separating sales, design and production teams, replacing them with a more market-oriented structure. The revised organizational structure divides the Instruments Company broadly into biosciences and industrial instruments. These reforms have resulted in faster decision-making and a major change in employee awareness in that attitudes and behavior are now more customer-focused. Product development speed has also been greatly improved.

## Shift to delivering solutions with biological microscopes

The bioscience market is forecast to continue growing over the long-term. The observation of live cells is one area of particular interest, especially with its links to regenerative medicine and bio drug discovery. Although the overall microscope market expanded minimally during the period, Nikon recorded 11% growth. This achievement was due to more than just robust sales of microscopes, it reflected efforts to provide solutions by way of systemization. Moving forward, Nikon will strengthen its sales and marketing capabilities by providing consulting to university professors and researchers through application engineers with highly specialized knowledge. Personnel with expert technical knowledge have been promoting sales in this manner in Europe already with highly successful results. Nikon plans to recruit more young sales reps in tune with the digital era to satisfy the demand for systemization.

## Critically acclaimed semiconductor inspection equipment

Nikon vastly improved profitability in semiconductor inspection equipment in the year under review. This was due to favorable market response to its automatic macro inspection (AMI) systems, introduced in response to device shrinkage. With the advent of 90nm processing for 300mm wafers, the superiority of Nikon's products has become clear. During the year, almost all domestic semiconductor manufacturing facilities with 300mm wafer production lines were using Nikon's AMI systems. Plans are in motion to launch the AMI-3300 in the year ending March 2007 to provide inspection at 55nm line-width.

## Focus on video measuring systems

Non-contact measuring systems featuring optical technology exploit Nikon's competitive edge in measuring equipment to maximum effect as measurements can be completed in a shorter space of time than systems that touch the inspected item. During the year, Nikon brought to market the NEXIV series of CNC video measuring systems that also measure height. Going forward, Nikon sees image processing software as a key element in this field, and is therefore channeling R&D investment into pertinent software development. Future efforts will focus on further advancing the NEXIV series with enhanced measuring capability for the third dimension of height as well as the usual two dimensions.

## Aggressively establish new Nikon Imaging Centers

Nikon has been establishing Nikon Imaging Centers at the world's leading universities in order to promote the development of microscopes for professors and researchers. During the period, Nikon instituted a Nikon Imaging Center at the University of Heidelberg, Hokkaido University and Oxford University. Plans are in place to establish a similar center at the University of California, San Francisco in the year ending March 2007. Through these facilities, Nikon contributes to

research in various fields, while reflecting information gathered in the development of leading-edge microscope systems.

## Key objectives of the medium term management plan

1. Nikon plans to cut development lead-time by 30% in a bid to further speed-up operations. Besides facilitating the timely launch of a wider range of new products, this will lead to lower product development costs, which in turn will contribute to expanded sales and profits.
2. In the biological microscopes field, Nikon seeks to expand business in live cell imaging systems.
3. With the cooperation of other departments, Nikon aims to expand sales and drive technical innovation. In particular, effective utilization of Nikon's core optical and image processing technologies is expected to make a major contribution towards the development of fresh new products.





## NET SALES\*

(millions of yen)

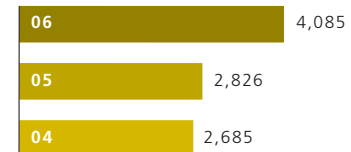


Years ended March 31

\*The above figures include intersegment sales.

## OPERATING INCOME

(millions of yen)



Years ended March 31



### Confocal NEXIV VMR-K3040ZC

CNC video measuring system that can make accurate, high-speed inspection and 3-D measurement of particularly complex architecture, such as the latest IC packages and MEMS



### Spectral imaging confocal microscope C1si

Add the ability to gather information at the maximum of a 320 nm wide wavelength range to the 4-dimensional data acquisition function of the C1 and you get 5-dimensional capability (previously impossible) with this true spectral imaging confocal laser scanning microscope system



### BioStation CT

BioStation CT (Cell Tracking) cell culture observation system enabling the stable and safe cultivation of cells and facilitating quality control

## OTHER



sport optics products,  
surveying instruments,  
ophthalmic frames,  
sunglasses

Sales in Other, including intercompany elimination, increased 12.6% year-on-year to ¥49,832 million, while operating income improved significantly to ¥1,929 million compared with a loss of ¥647 million in the prior year. The leading business developments during the year were as follows.

1. Sales were strong in customized products and glass-related operations.
2. Significant sales growth was posted in the sport optics products business as a result of efforts to expand sales of new products such as in the Laser Rangefinder and Fieldscope series.
3. Sales of ophthalmic products declined owing to business structure reforms amid a continued harsh market environment. Despite this, profitability improved substantially.

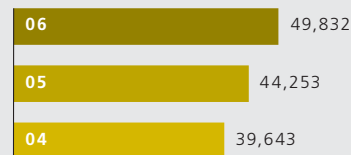
### Aggressive development of new businesses

Nikon continued working to foster new business areas leveraging its core technologies such as precision technology, optical technology and image processing technology. One example is the field of Chemical Mechanical Polishing (CMP) systems designed to make LSI chip surfaces even. Despite a delay in the use of ultra low-k insulation materials, which are the main target application, Nikon continued to attract more interest from chipmakers. Nikon intends to proceed with future developments in this area while keeping a close eye on market trends. In glass-related operations, Nikon is concentrating on expanding external sales including ultra-high-grade silica glass, a field in which

it has a competitive advantage. In solid-state lasers, Nikon continues to promote the development of high-reliability deep UV laser light sources and their applications as a means to expanding into new areas.

#### NET SALES\*

(millions of yen)

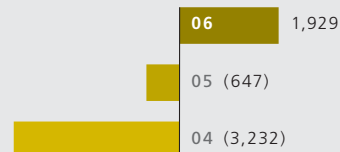


Years ended March 31

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#### OPERATING INCOME (LOSS)

(millions of yen)



Years ended March 31

## Other highlights

### **Introduced compact, light Fieldscope ED50 series models**

Fieldsopes make activities such as bird- and animal-watching more enjoyable while also incorporating ultra-telescopic photographic capabilities. The Fieldscope ED50 series models released during the period feature a small 50mm objective lens diameter to accommodate demands for more compact, light, portable and affordable models. The ED glass used for their objective lenses compensates for chromatic aberrations and realizes bright, clear viewing. Waterproof construction with nitrogen gas filling makes these models difficult to fog up when subjected to wet weather and sudden temperature changes.

### **Marketed Laser Rangefinder LASER 1200S with superior measurement accuracy over long distances**

Laser Rangefinders enable measurement over extended distances with simple one-touch operation in which an infrared laser beam is emitted to the target and reflected pulses are sent back. The devices are widely adopted for leisure applications such as golf to simple field and construction site surveys. Among these activi-

ties, future growth is expected in the golf market as a result of revisions to the official golf rules introduced in January 2006, which enable a committee to introduce a local rule permitting golfers to obtain distance information by using a device that measures distance only.

The LASER 1200S is the new flagship model of Nikon's Laser Rangefinder lineup, featuring two measurement modes depending on the particular target situation. First Target Priority mode is suitable for measuring the distance to the pin for approach shots or short holes. Distant Target Priority mode is useful for simple surveys at construction sites or in a forest.

### **Released a compact stereoscopic microscope, EZ-Micro, to be connected with digital camera to enjoy both observation and photography**

In recent times, demand has been increasing for a system that allows users to both observe and take pictures of microscopic images easily. The Fieldmicroscope EZ-Micro was developed to do just that by incorporating a COOLPIX digital camera (limited to certain models) equipped with a special bracket and a light path, thereby making it easy to capture the image.



#### **Fieldscope ED50 series**

This series offers superior portability via compact, lightweight design



#### **LASER 1200S**

Handheld Laser Rangefinder enabling superior measurement accuracy over extended distances with simple one-touch operation



#### **Fieldmicroscope EZ-Micro**

Nikon's EZ-Micro to be connected with a COOLPIX digital camera combines the fun of photo-taking with observation